



## Hybrid Inverter Introduction

15 05 2025 - Secondway - Belgium - Europe

- **Family & Models**
- High Quality Design & Manufacturing
- Systems & Connections
- Work Modes
- Installation (referring to the installation training slides)
- Parameter Setting
- Trouble Shooting

## Families & Models

Family	Model No	Specs	Phase	MPPT No.	String input/MPPT	String Current /A	DC Switch	WiFi
Single Phase, High Voltage	HYSH-3000	3.0kW, 1 Phase hybrid	Single	1	1	13	✓	✓
	HYSH-3680	3.68kW, 1 Phase hybrid	Single	1	1	13	✓	✓
	HYSH-5000	5.0kW, 1 Phase hybrid	Single	1	1	13	✓	✓
	HYSH-6000	6.0kW, 1 Phase hybrid	Single	1	1	13	✓	✓
Three Phase, High Voltage	HYTH-5000	5.0kW, 3 Phase hybrid	Three	2	1	15	✓	✓
	HYTH-6000	6.0kW, 3 Phase hybrid	Three	2	1	15	✓	✓
	HYTH-8000	8.0kW, 3 Phase hybrid	Three	2	1	15	✓	✓
	HYTH-10000	10.0kW, 3 Phase hybrid	Three	2	1	15	✓	✓
	HYTH-12000	12.0kW, 3 Phase hybrid	Three	2	1	15	✓	✓
	HYTH-15000	15.0kW, 3 Phase hybrid	Three	2	1	15	✓	✓
Single Phase, Low Voltage	HYSL-3000	3.0kW, 1 Phase hybrid	Single	1	1	16	✓	✓
	HYSL-3680	3.68kW, 1 Phase hybrid	Single	1	1	16	✓	✓
	HYSL-4000	4.0kW, 1 Phase hybrid	Single	1	1	16	✓	✓
	HYSL-5000	5.0kW, 1 Phase hybrid	Single	1	1	16	✓	✓
	HYSL-6000	6.0kW, 1 Phase hybrid	Single	1	1	16	✓	✓



HY – Hua Yu which is the Chinese name of Enerlution

S – Single phase

T – Three phase

H – High voltage

L – Low voltage

# Features & Specs - HYSL



## HYSL 3000-6000

Low Voltage Single Phase Hybrid Inverter



PV RATIO UP TO  
2.0



MONITORING VIA  
CLOUD



ENVIRONMENTAL  
ADAPTABILITY



SAFE AND EASY TO  
INSTALL

MODEL	HYSL-3000	HYSL-3680	HYSL-4000	HYSL-5000	HYSL-6000
<b>BATTERY INPUT</b>					
Battery type	Lithium/Lead-Acid				
Input voltage range (V)	40-60				
Max.charging/discharging current (A)	70		80		120
Max.Charging/Discharging voltage (V)	<=60 (Adjustable)				
Charging strategy for Li-ion battery	Self Adaption to BMS				
<b>PV INPUT</b>					
Max. pv power (W)	6000	7360	8000	10000	12000
Max.Input voltage (V)	600				
Start Up Voltage (V)	70				
MPP Voltage Range (V)	80-550				
Rated Input Voltage (V)	360				
Max. Input Current (A)	16/16				
Max. Short Circuit Current (A)	20/20				
No. of MPPTs/No. Strings Per MPPT	2/1				
<b>AC OUTPUT</b>					
Rated power (W)	3000	3680	4000	5000	6000
Max. apparent power (VA)	3300	4048	4400	5500	6600
Rated grid frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Max. output current (A)	14.3	17.6	19.1	23.9	28.7
Power factor	0.8ind-0.8cap				
THDi @ rated power	< 3%				
Grid connection	Single Phase				
<b>AC OUTPUT(BACK-UP)</b>					
Rated power (W)	3000	3680	4000	5000	6000
Rated output voltage (V)	230				
Rated output frequency (Hz)	50/60				
Peak output apparent power (VA)	2 times of rated power for 3000-4000W@10s;1.5 times for 5000-6000W@10s				
Rated output current (A)	13.0	16.0	17.4	21.7	26.1
Switch time (ms)	< 10				
<b>GENERAL DATA</b>					
Dimensions(W*H*D)(mm)	455*365*182				
Weight (kg)	18.4				
User Interface	LCD&LED				
PV connection type	MC4				
AC connection type	OT Terminal + Shell				
Battery connection type	Plug-in				
Cooling	Natural Cooling				
Communication with meter	RS485				
Operating ambient temp (C)	-30 ~ +60				
CT connection type	Plug-in Connector				
Max.operating altitude (m)	3000 (>3000 Derating)				
protection class	IP65				
Night consumption (W)	< 5				
Max. parallel number	9				
Warranty	5 (10)years				
<b>STANDARD COMPLIANCE</b>					
Safety	IEC 61000-6-1/-3, EN 62920, EN 62109-1/-2, SUD TUV MARK, EN 55011				
Grid connection standards	EN 50549-1&-10/CEI 0-21				

# Features & Specs - HYSH



## HYSH 3000-6000

High Voltage Single Phase Hybrid Inverter

 Peak Efficiency  
**97.9%**

 Max.DC Overload  
**60%**

 Aluminum Alloy Die Casting

 MES+FCT+CRM Infrastructure

 Easy to Install and Service

 Energy Management

MODEL	HYSH-3000	HYSH-3680	HYSH-5000	HYSH-6000
<b>BATTERY INPUT</b>				
Battery type	Li-Ion			
Input voltage range (V)	80-480			
Max. charging/Discharging current (A)	25/25			
Charging strategy for Li-Ion battery	Self-adaption to BMS			
Start up voltage (V)	70			
<b>PV INPUT</b>				
Max. pv power (W)	4950	5520	7500	9600
Max. Input Voltage (V)	600			
Rated input voltage (V)	360			
Start up voltage (V)	70			
MPPT voltage range (V)	80-520			
Max. Input current (A)	13/13			
Max. short circuit current (A)	20/20			
No. of MPPTs / no. strings per MPPT	2/1			
<b>AC OUTPUT/INPUT</b>				
Rated power (W)	3000	3680	5000	6000
Max. apparent ac power from grid (VA)	6600	7360	8500	10000
Max. apparent power (VA)	3300	3680	5500	6600
Max. output current (A)	15.0	16.0	23.0	27.3
Max. current from grid (A)	30.0	32.0	36.0	40.0
Grid connection	Three Phase			
Power factor	0.8ind - 0.8cap			
THDI @ rated power	<3%			
<b>AC OUTPUT (BACK-UP)</b>				
Rated power (W)	3300	3680	5000	6000
Peak apparent output power (VA)	3960	4416	6000	7200
Rated output voltage (V)	230			
Rated output frequency (Hz)	50/60			
Max. output current (A)	15.0	16.0	23.0	27.3
Auto switch time (ms)	< 10			
<b>GENERAL DATA</b>				
Dimensions(W*H*D)(mm)	425*351*160			
Weight (kg)	14.2			
User Interface	LCD&LED			
DC connection type	MC4			
AC connection type	Plug-in Connector			
Battery connection type	SUNCLIX			
Cooling	Natural Cooling			
Communication with cloud	RS485 / Wi-Fi / 4G / LAN (optional)			
Communication with BMS	CAN/RS485			
Communication with meter	RS485			
Operating ambient temp (°C)	-25 ~ +60			
CT connection type	Plug-in Connector			
Max. operating altitude (m)	3000 (>3000 Derating)			
Protection class	IP65			
Night consumption (W)	< 5			
<b>STANDARD COMPLIANCE</b>				
Safety	IEC 61000-6-1/-3, EN 62920, EN 62109-1/-2, SUD TUV MARK			
Grid connection standards	EN 50549-18-10, NTS Type A, RD 647/413/1699, UNE 217002			

# Features & Specs - HYTH



## HYTH 5000-15000

High Voltage Three Phase Hybrid Inverter

Peak Efficiency  
**98.5%**

Max.DC Overload  
**50%**

Aluminum Alloy Die Casting

MES+FCT+CRM Infrastructure

Easy to Install and Service

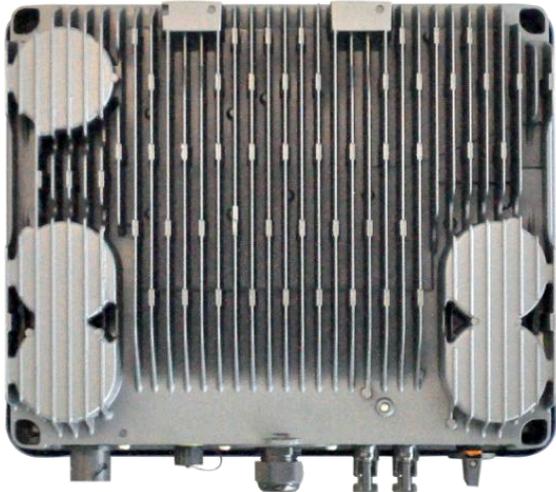
Energy Management

MODEL	HYTH-5000	HYTH-6000	HYTH-8000	HYTH-10000	HYTH-12000	HYTH-15000
<b>BATTERY INPUT</b>						
Battery type	LI-Ion					
Battery voltage range (V)	160-800					
Max. charging/Discharging current / A	25/25					
Charging strategy for LI-Ion battery	Self-adaption to BMS					
<b>PV INPUT</b>						
Max. PV power (W)	7500	9000	12000	15000	18000	18000
Max.Input voltage (V)	1000					
Mppt voltage range (V)	150-850					
Start up voltage (V)	145					
Rated Input voltage (V)	620					
Max. Input current (A)	15/15				30/15	
Max. short circuit current (A)	20/20				40/20	
No. of MPPTs / no. strings per MPPT	2/(1/1)				2/(2/1)	
<b>AC OUTPUT/INPUT</b>						
Rated power (W)	5000	6000	8000	10000	12000	15000
Max. apparent power (VA)	5500	6600	8800	11000	13200	16500
Max. output current (A)	8.5	10.0	13.5	16.0	20.0	24.0
Rated grid frequency (Hz)	50/60					
Power factor	0.8ind-0.8cap					
THDi @ rated power	< 3%					
Grid connection	Three Phase					
<b>AC OUTPUT(BACK-UP)</b>						
Rated power (W)	5000	6000	8000	10000	12000	12000
Peak output apparent power (VA)	10000	12000	15000			
Max. output current (A)	8.5	10.0	13.5	16.0	20.0	20.0
Rated output voltage (V)	380/400					
Rated output frequency (Hz)	50/60					
Switch time (ms)	< 10					
<b>GENERAL DATA</b>						
Dimensions(W*H*D)(mm)	425*346*200					
Weight (kg)	21.1					23
User Interface	LCD&LED					
PV connection Type	MC4					
AC connection Type	Plug-In Connector					
Battery connection Type	SUNCLIX					
Communication with cloud	RS485 / Wi-Fi / 4G / LAN (optional)					
Operating ambient temp (°C)	-25 ~ +60					
CT connection type	Plug-In Connector					
Max.operating altitude (m)	2000 (>2000 Derating)					
Protection class	IP65					
Night consumption (W)	< 13					
<b>STANDARD COMPLIANCE</b>						
Safety	IEC 61000-6-1/-2/-3/-4, EN/IEC 62109-1/-2, TUV SUD MARK					
Grid connection standards	EN 50549-1, VDE-AR-N 4105, CEI 0-21					

- Family & Models
- High Quality Design & Manufacturing
- Systems & Connections
- Work Modes
- Installation (referring to the installation training slides)
- Parameter Setting
- Trouble Shooting

## High Quality Design & Manufacturing

Mechanical



## FULL ALUMINUM ALLOY DIE CASTING

### FULL INTEGRATION

- No secondary process in manufacturing
- Integrated thermal dissipation
- Closest tolerance in mass production

### HORIZONTAL DESIGN

- Optimized heat distribution across width
- Increased amount of heat fins
- Shorter distance for natural convection

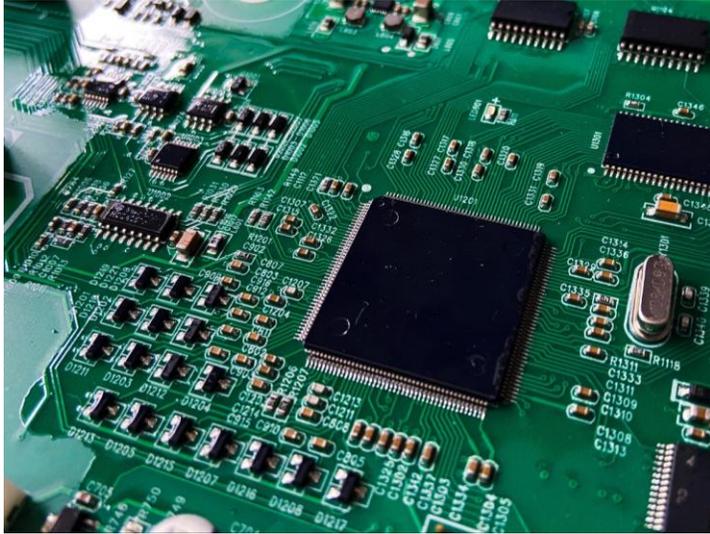
### EXTERNAL CHOKES

- Independent heat dissipation for chokes
- Protection for key components on PCBA
- Low potential risks of overheating

No fans, no noise

## High Quality Design & Manufacturing

Electronical



### CONFORMAL COATING

Peters Conformal Coating, made in Germany. Further protection layer for delicate and highly sensitive components on PCBA.



### CLEAN LAYOUT

Standardized point-to-point wiring & Superb PCBA layout design. Less overlaps and EMC risk-free, making the device more compact, and service much easier.



### ISOLATED CHOKES

Chokes generate more than 1/3 of total internal heat. Isolating them from PCBA protect delicate components like IGBT and capacitors.

**High Quality Design  
& Manufacturing**

Suppliers



## CONTROL ALGORITHM

INNOVATIVELY DEVELOPPED, DECADES OF EXPERIENCE

+

## NEW GENERATION DSP

DUO CPU+DUO CLA, PROCESSING@800 MIPS\*

Anti-Island Protection

Input Reverse Polarity Protection

Insulation Resistance Detection

Residual Current Monitoring

Output Over Current Protection

Output Short Circuit Protection

Over Voltage Protection



## F28379D×2

- Frequency 200MHz, 800MIPS
- Dual C28x core + Dual CLA
- 16-Bit ADC Resolution

- Family & Models
- High Quality Design & Manufacturing
- **Systems & Connections**
- Work Modes
- Installation (referring to the installation training slides)
- Parameter Setting
- Trouble Shooting

# Packing List



# HYSL

## WI-FI

- Plug & Play
- Connect to [Hypon.cloud](#)

### PV Input

- Start-up Voltage 70V
- MPPT Range 80-550V

### Battery Input

- Voltage Range 40-60V



### On-grid Output

### BMS Port

- Battery communication

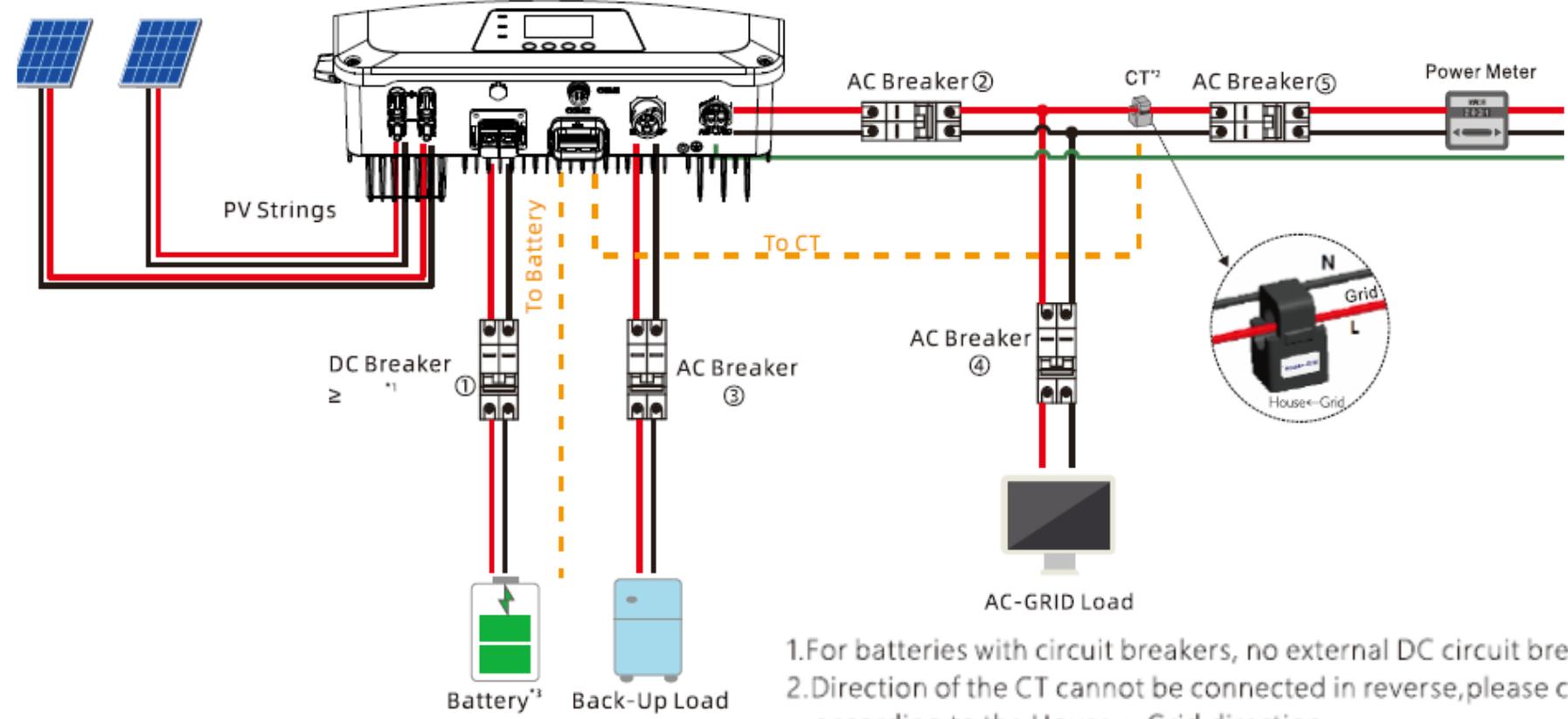
### COM 2

- CT connection port

### Back-up Output

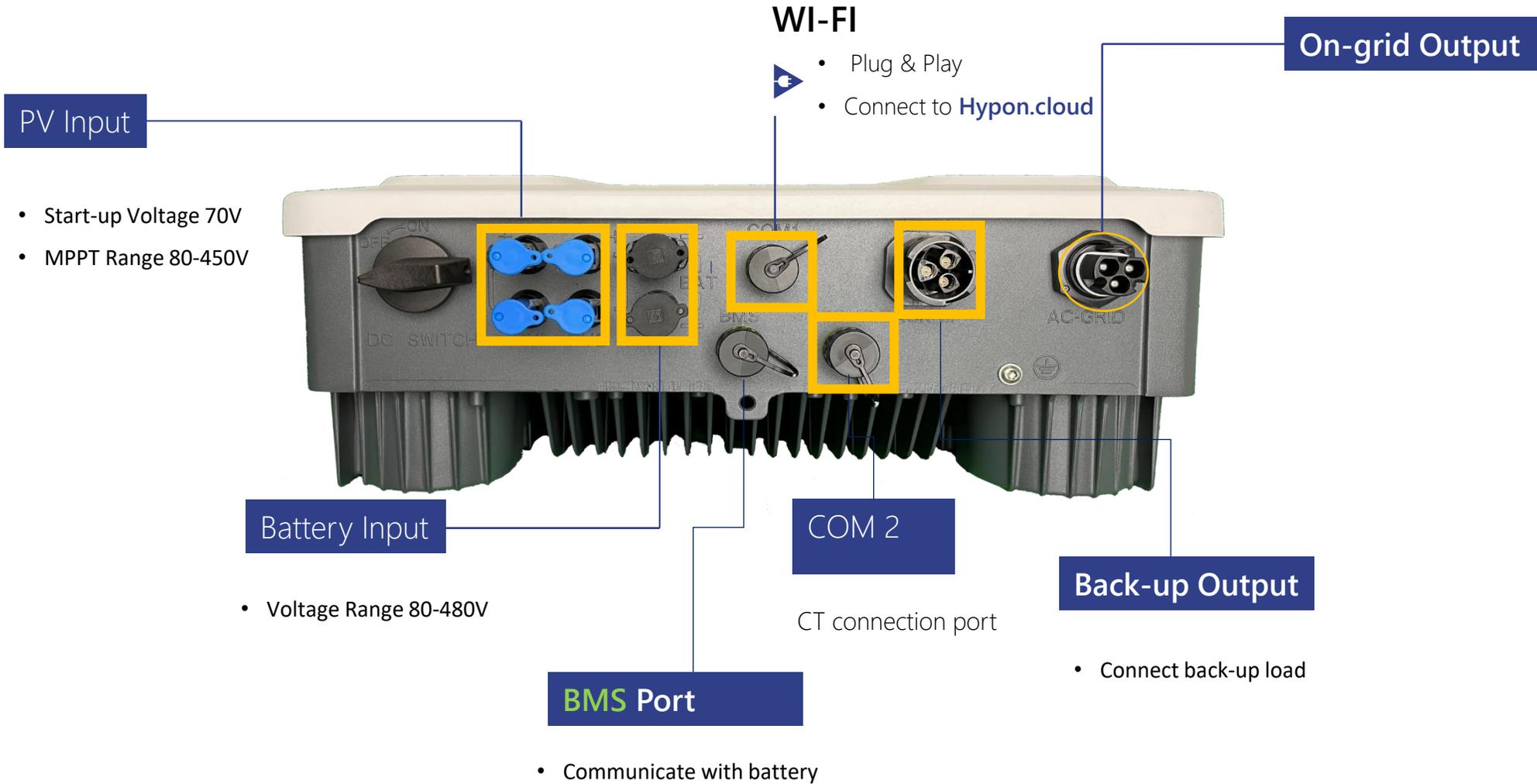
- Connect back-up load

model	breaker	①	②	③	④	⑤
			50A/230V AC breaker	50A/230V AC breaker	Depends on household loads	
			50A/230V AC breaker	50A/230V AC breaker		
			63A/230V AC breaker	63A/230V AC breaker		
			63A/230V AC breaker	63A/230V AC breaker		
			63A/230V AC breaker	63A/230V AC breaker		

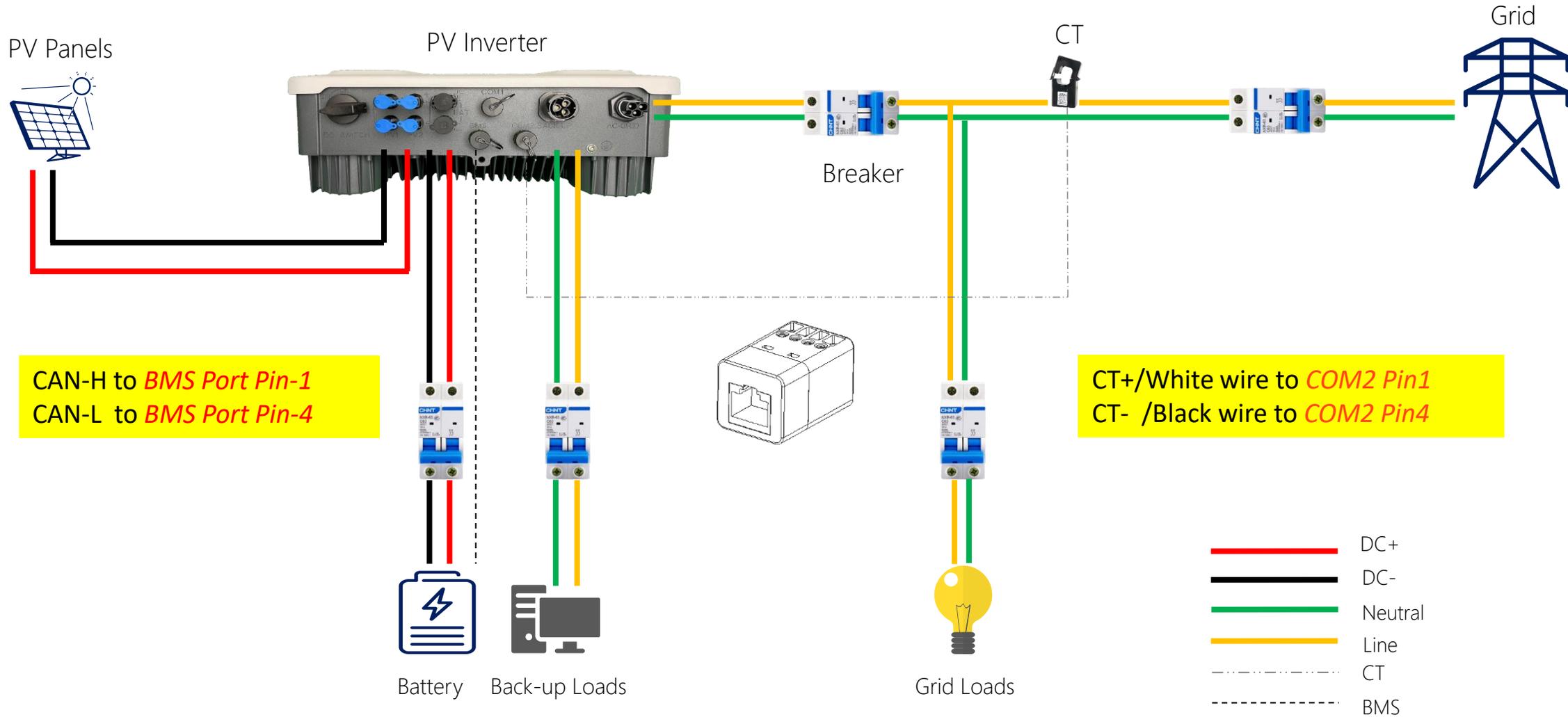


1. For batteries with circuit breakers, no external DC circuit breaker is required
2. Direction of the CT cannot be connected in reverse, please connect according to the House ← Grid direction.
3. Battery inverters do not need to route between batteries and inverters before activating battery functions.

# HYSH



# HYSH (CT)



# HYTH

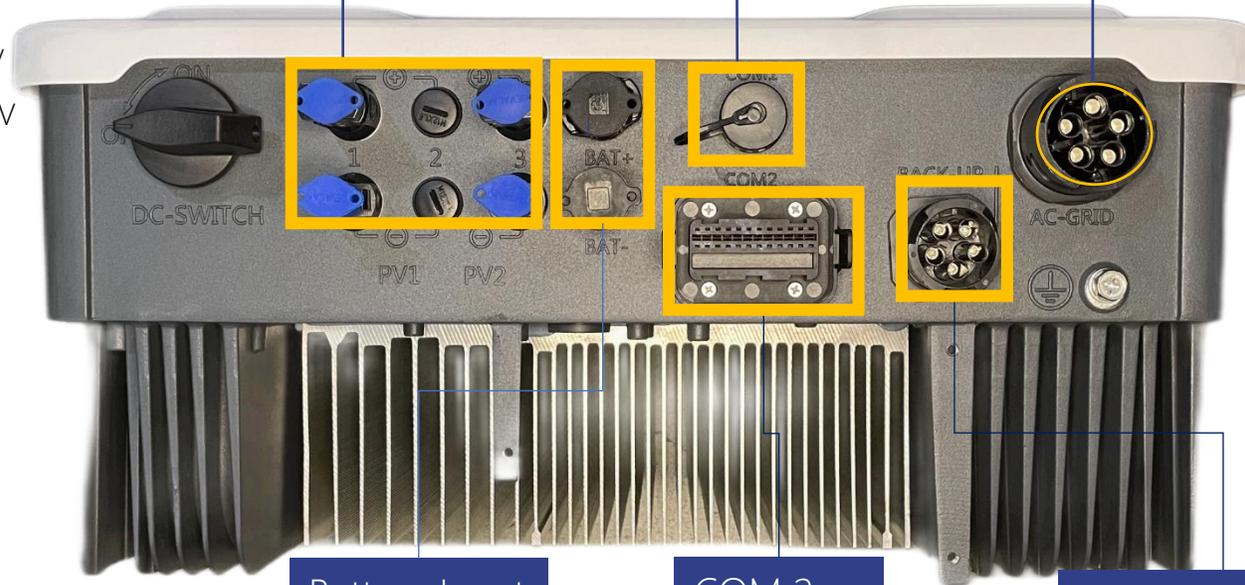
## PV Input

- Start-up Voltage 145V
- MPPT Range 150-850V

## WI-FI

- Plug & Play
- Connect to [Hypon.cloud](#)

## On-grid Output



## Battery Input

- Voltage Range 160-800V

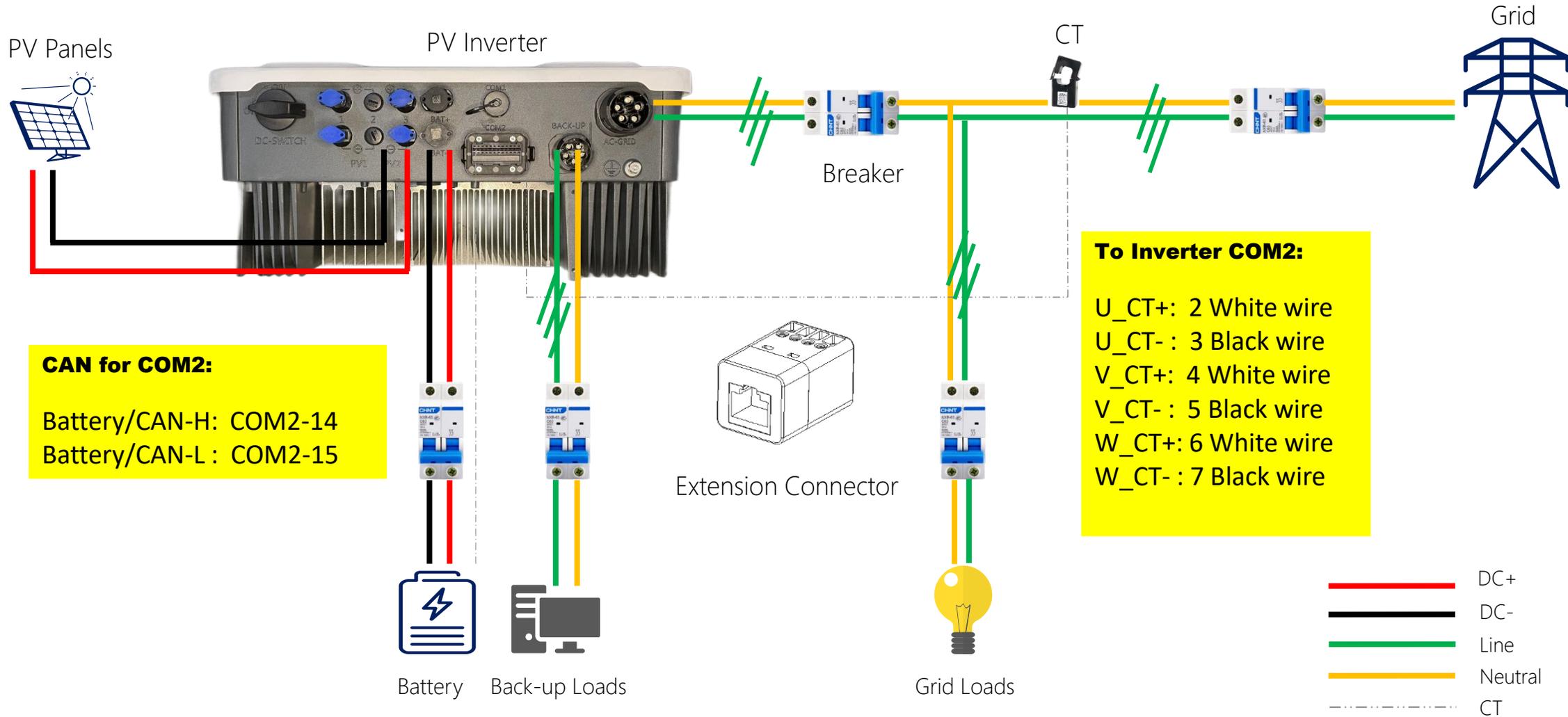
## COM 2

- CT connection port
- **BMS** Port

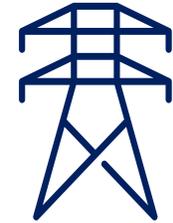
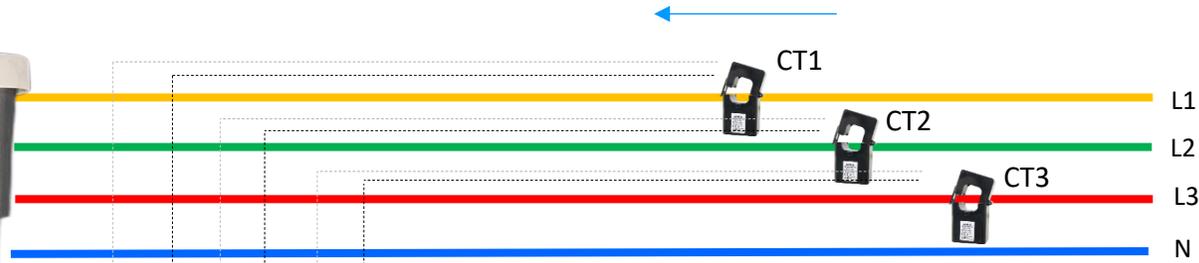
## Back-up Output

- Connect back-up load

# HYTH (CT)



# CT Wires Connection(HYTH)

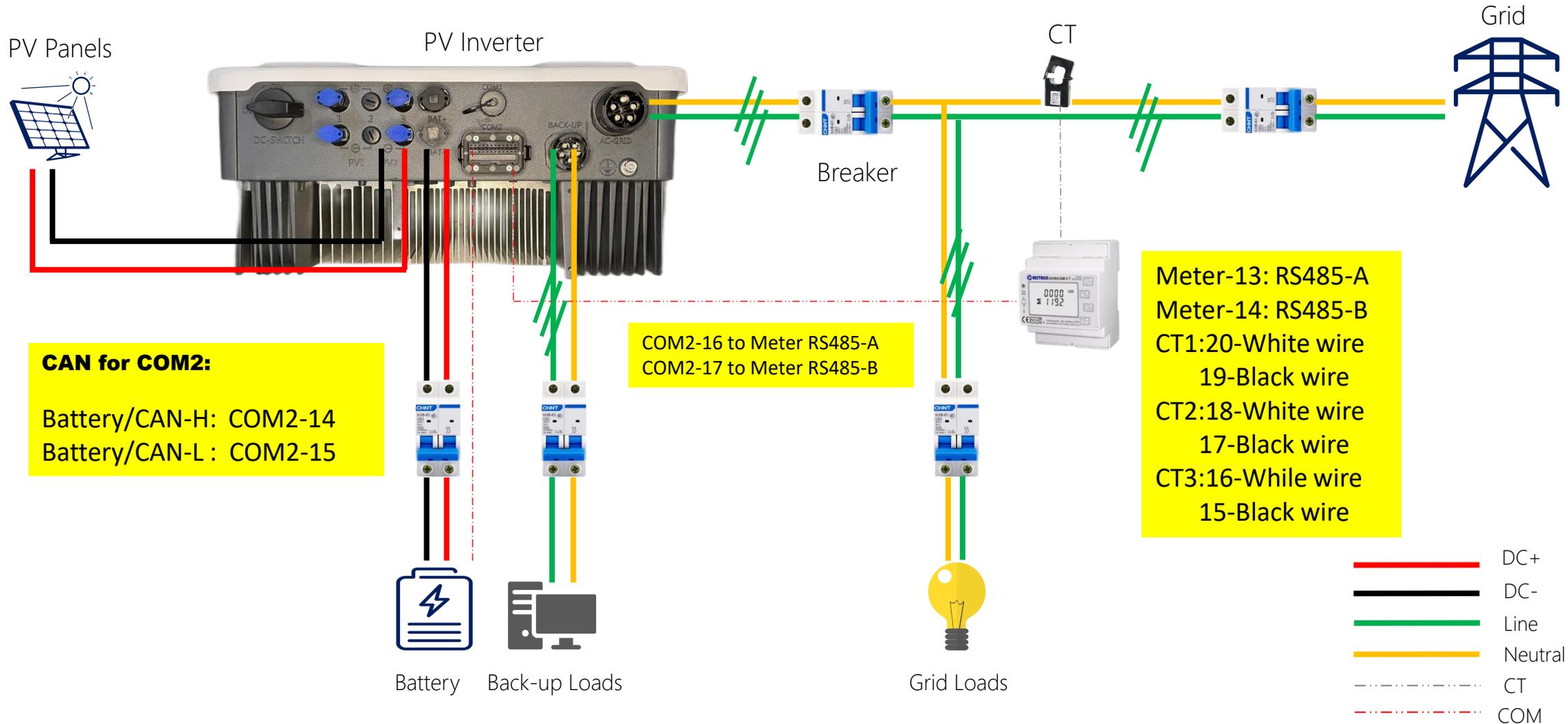


- DC+
- DC-
- Line
- Neutral
- - - CT
- - - BMS



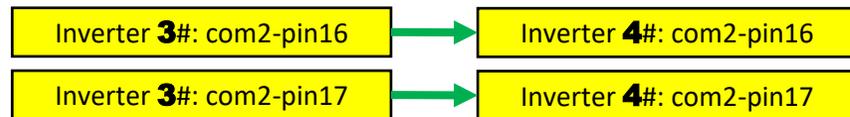
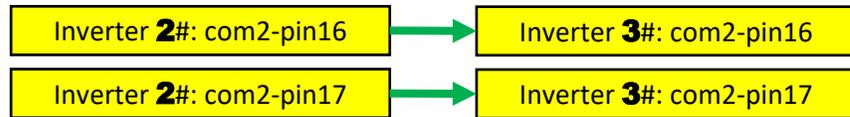
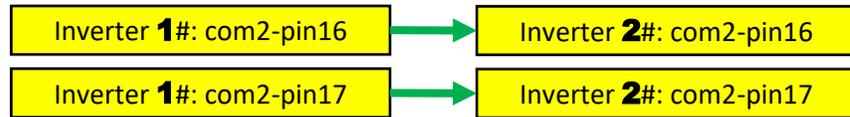
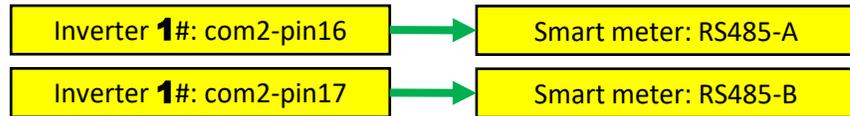
PIN	Function
2	CT1+ White wire
3	CT1- Black wire
4	CT2+ White wire
5	CT2- Black wire
6	CT3+ White wire
7	CT3- Black wire

# HYTH (Smart Meter)

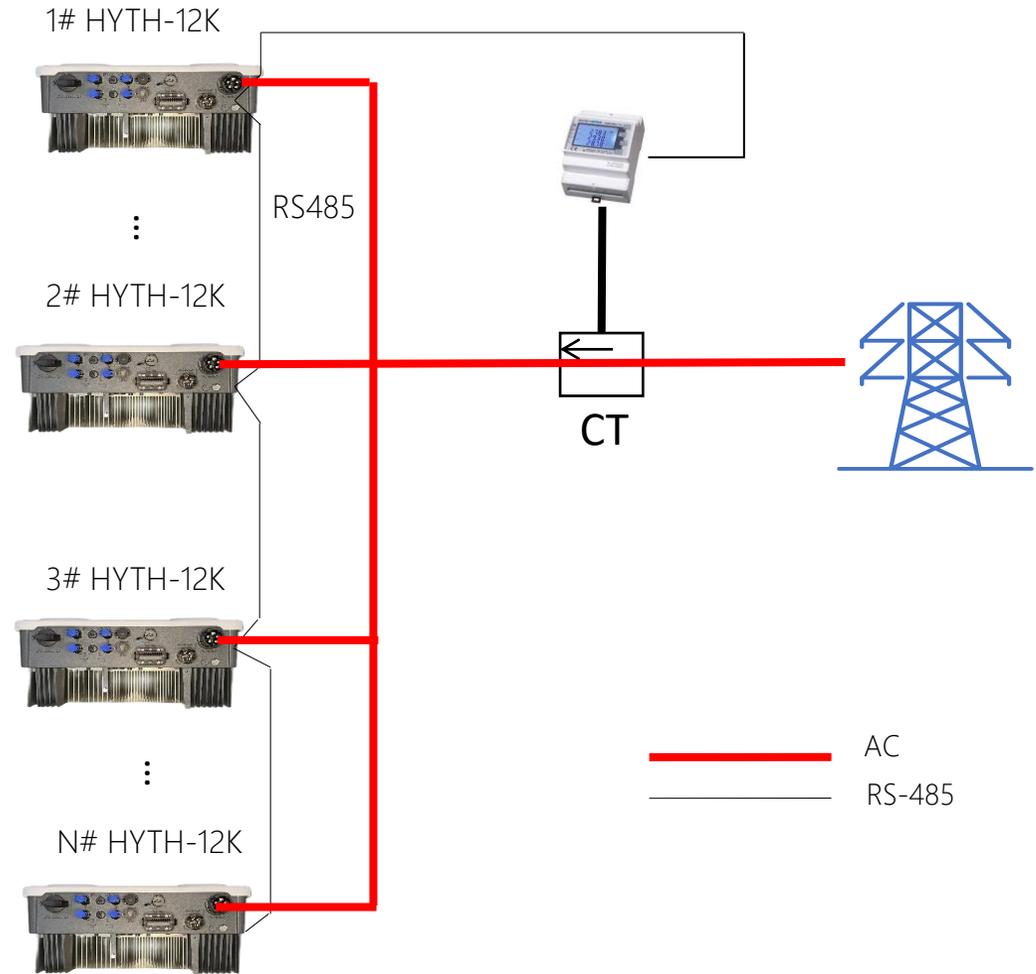


# Multi-HYTH System (Parallel in grid side)

10



⋮



- Family & Models
- High Quality Design & Manufacturing
- Systems & Connections
- **Work Modes**
- Installation (referring to the installation training slides)
- Parameter Setting
- Trouble Shooting

# Work Modes

General Mode

Meet the loads need in priority @ *High electric fee with no FIT*

Back-up Mode

Charge the battery in priority @ *Unstable grid environment*

Off Grid Mode

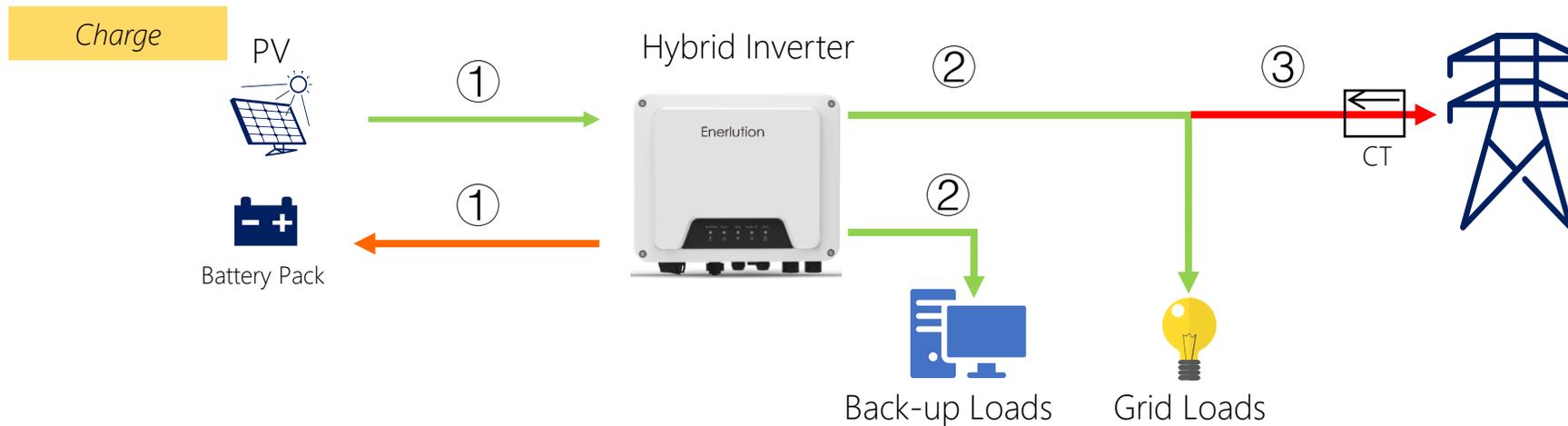
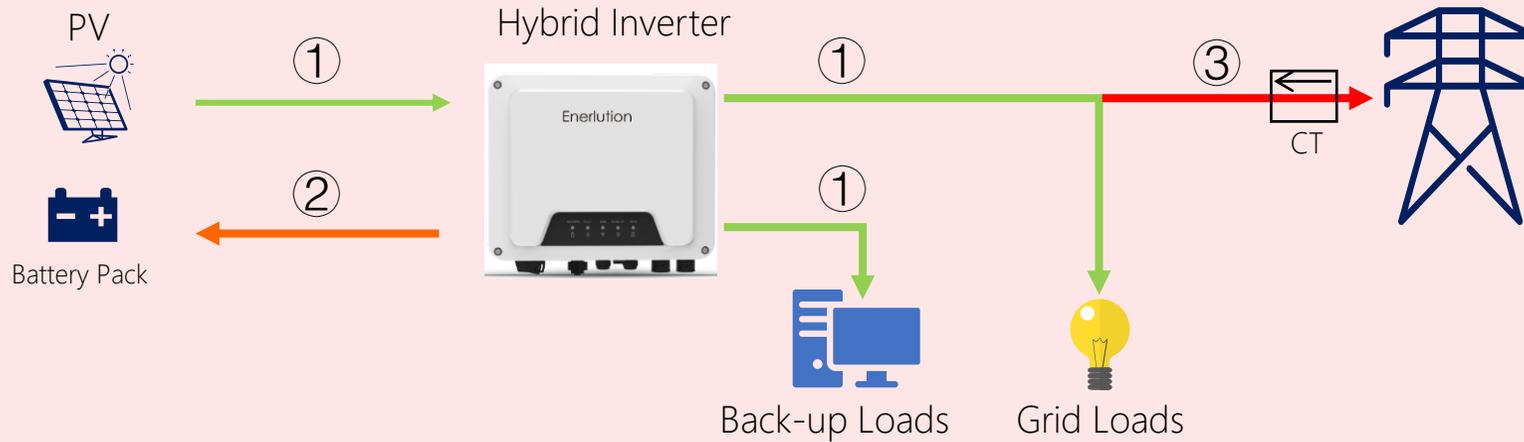
Supply power to Loads in priority @ *No grid (the battery is needed)*

Feed in Priority Mode

Feeding power to grid in priority @ *High electric fee with FIT*

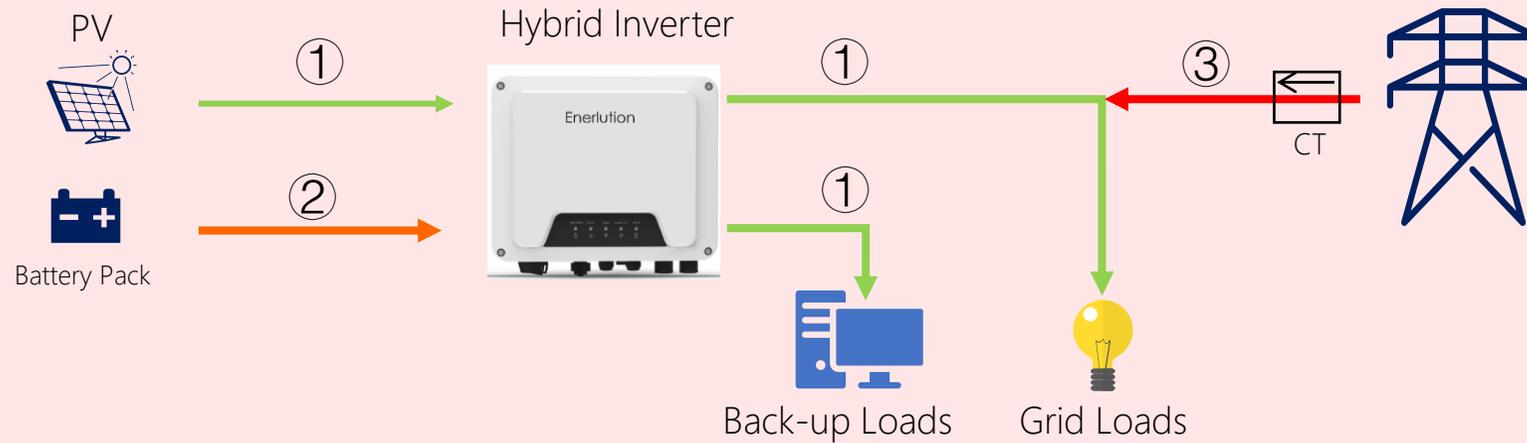
# Work Mode — General Mode

- 1  >   
Greater than Load

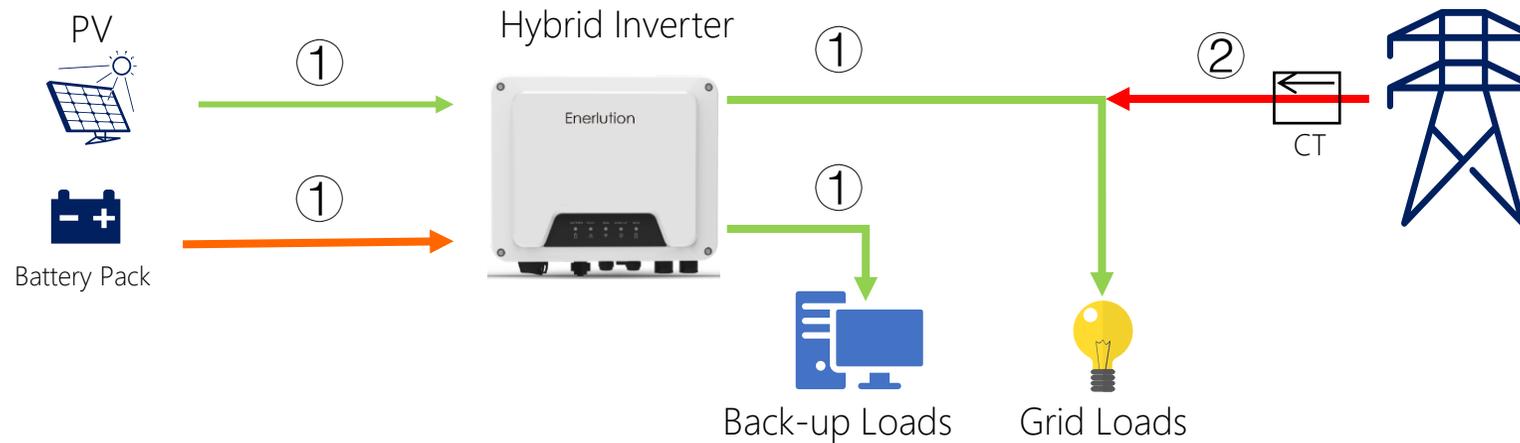


# Work Mode — General Mode

- 2  < 



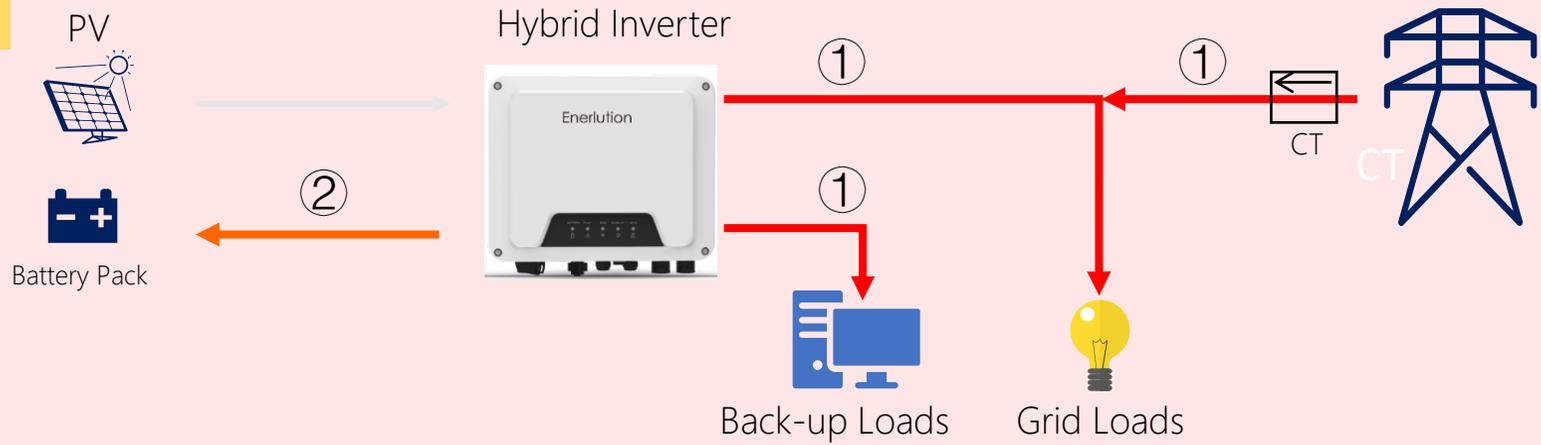
## Discharge



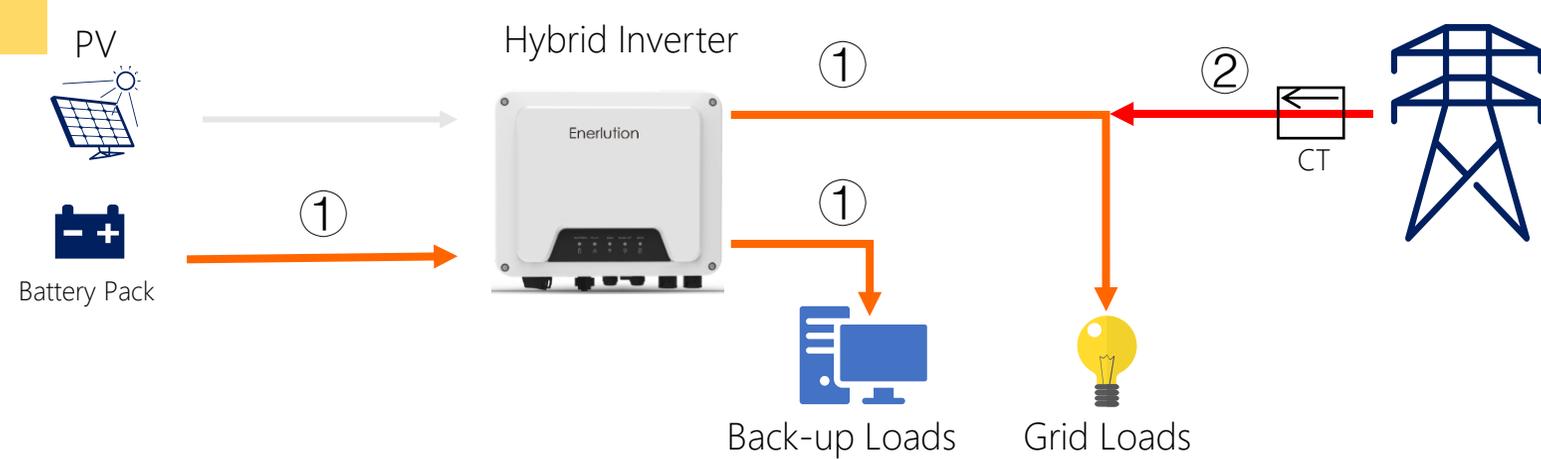
# Work Mode — **General Mode**

- **3**   0  
No PV Power

## Charge

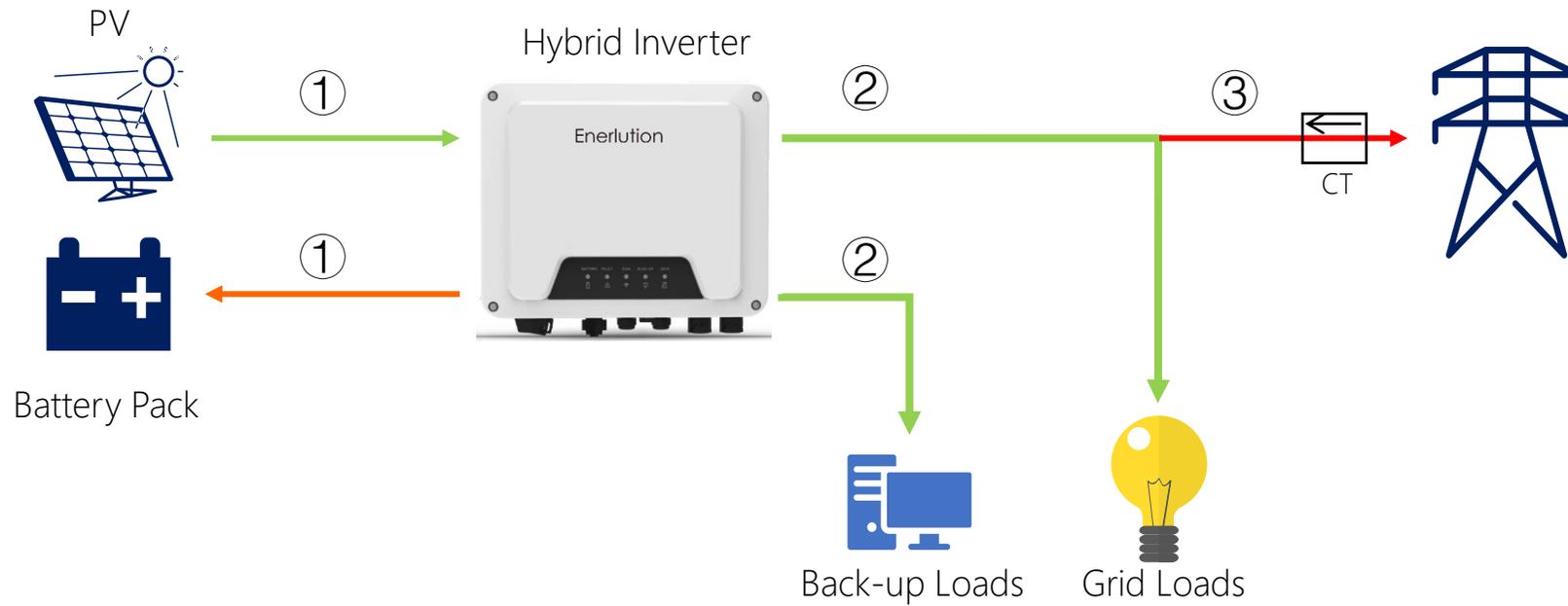


## Discharge



# Work Mode — **Back-up Mode**

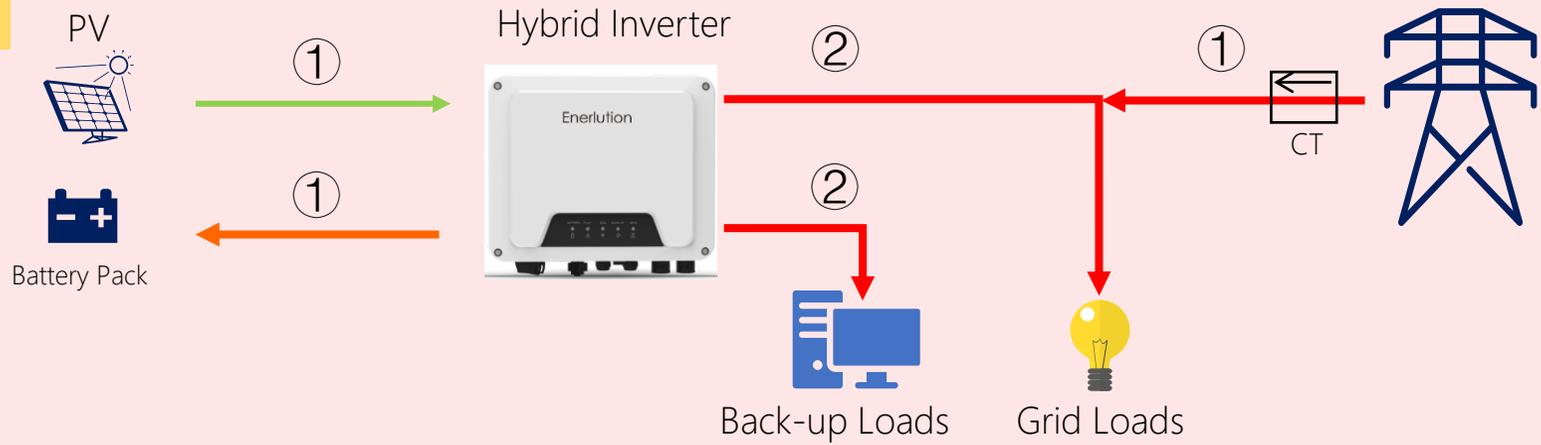
- **1**  > 



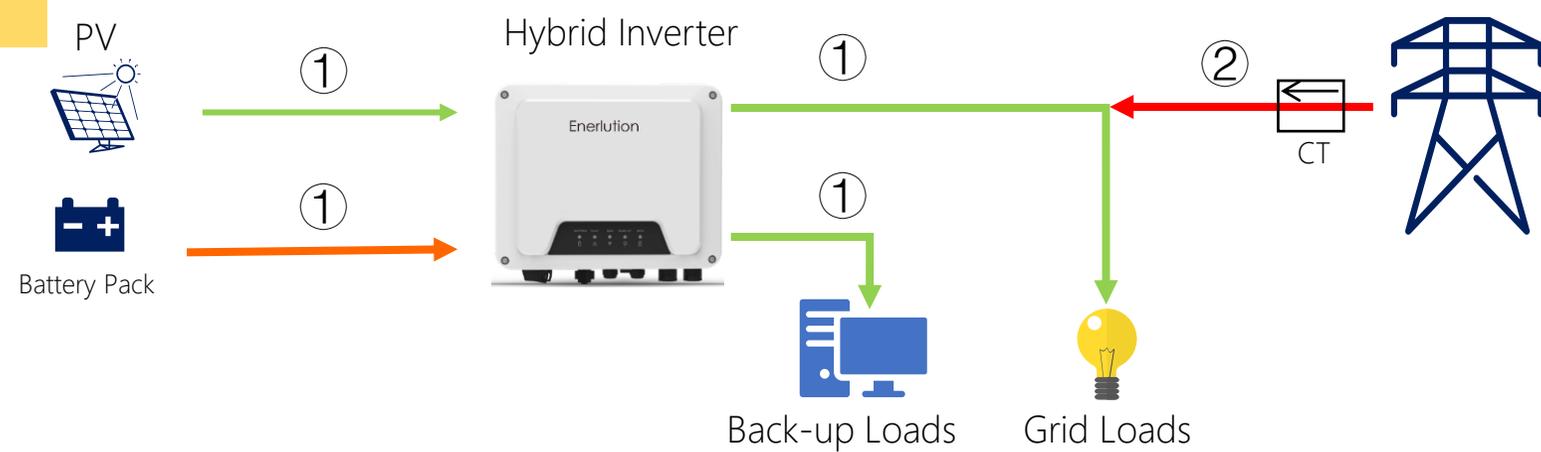
# Work Mode — Back-up Mode

- 2  < 

Charge



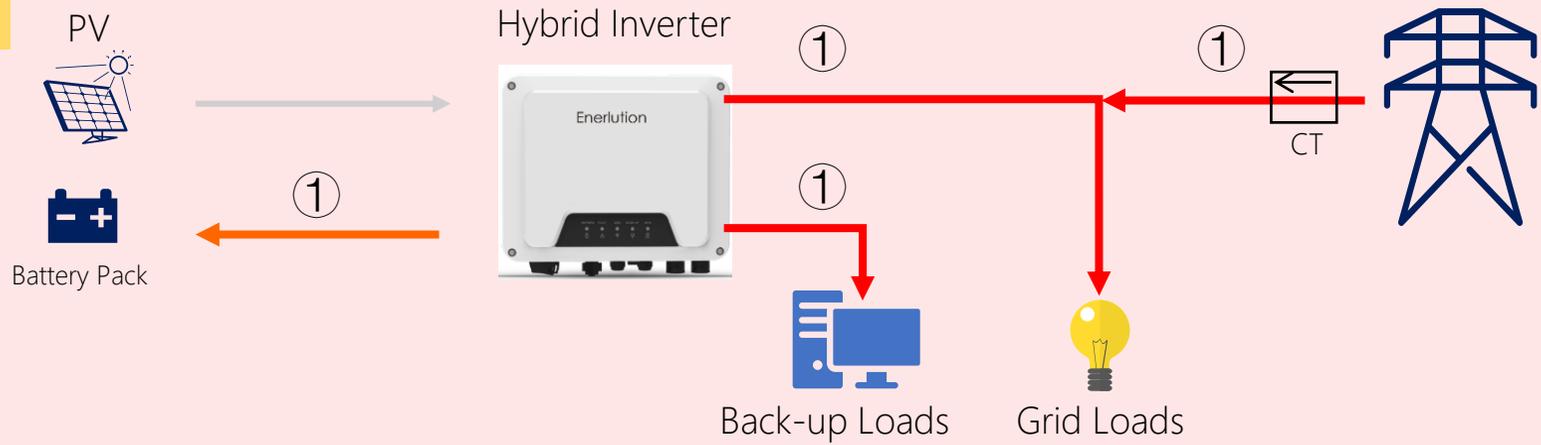
Discharge



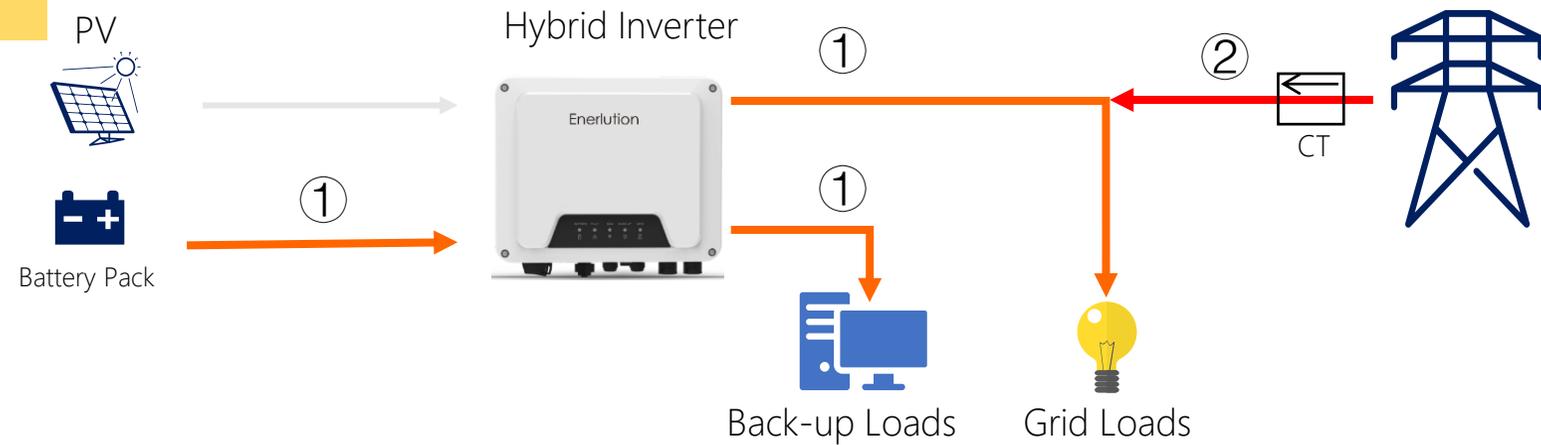
# Work Mode — Back-up Mode

- 3  = 0

Charge

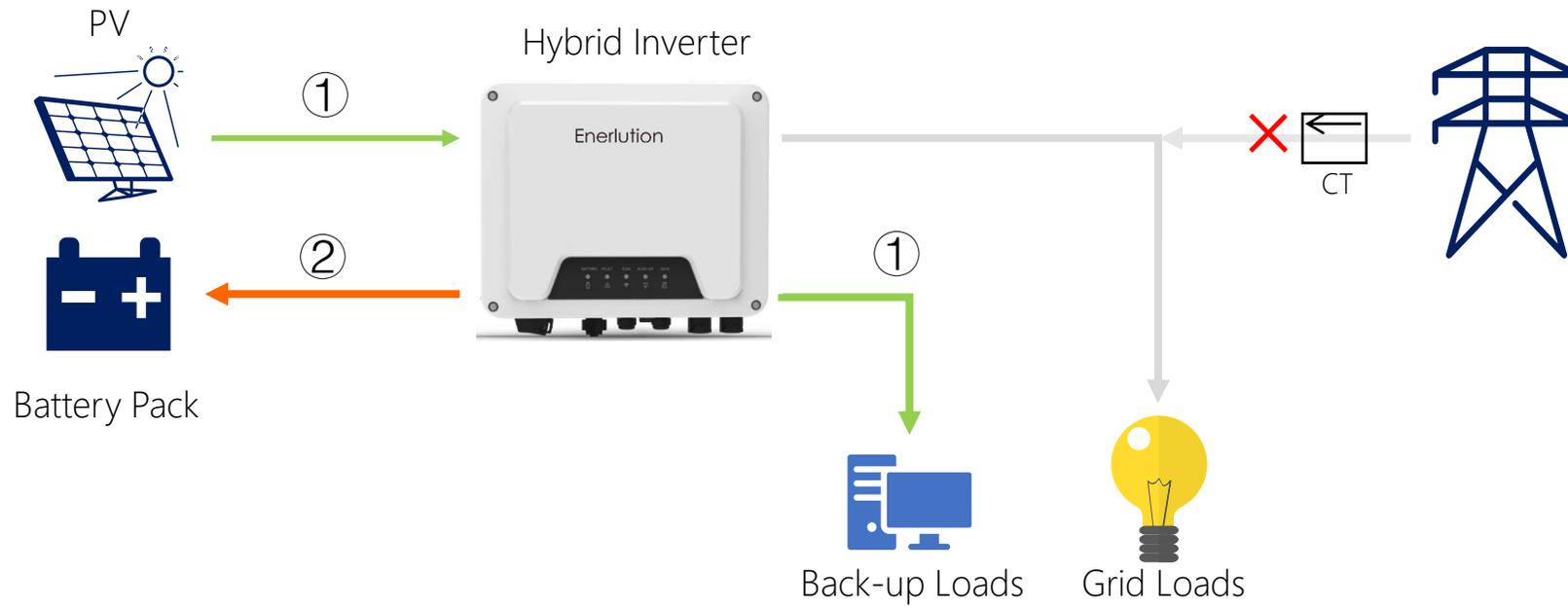


Discharge



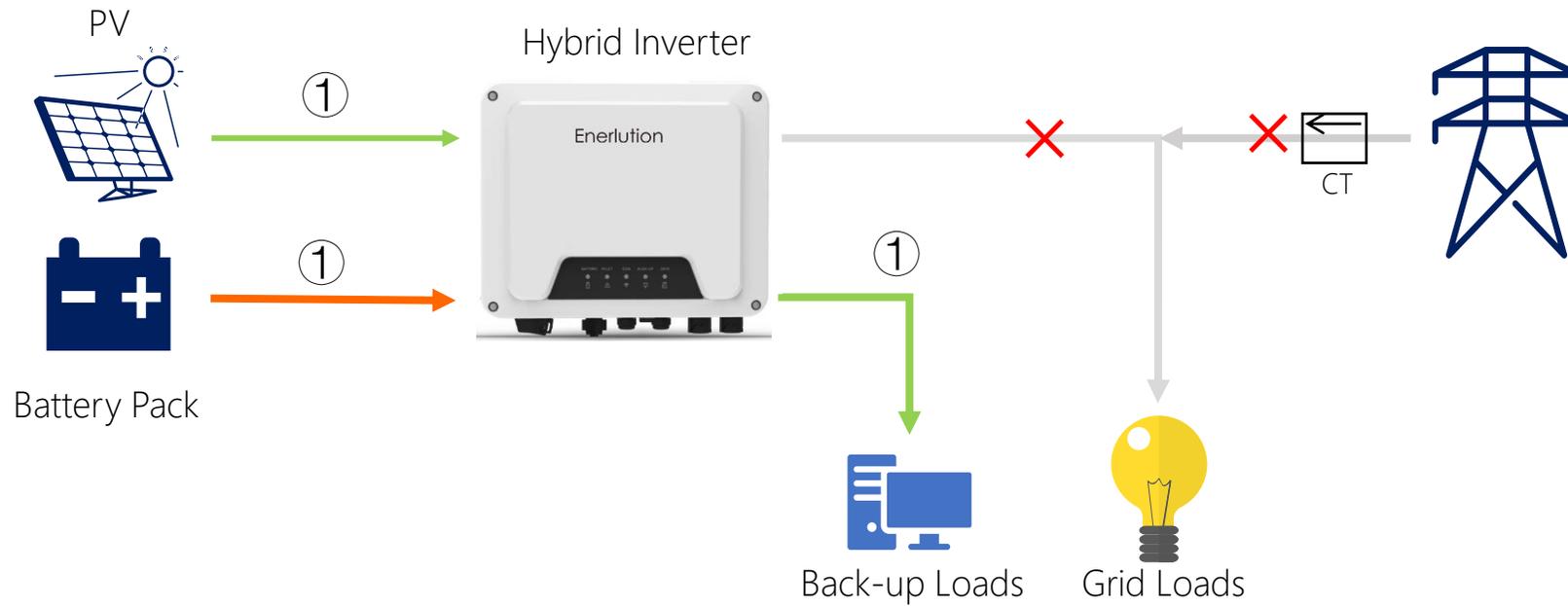
# Work Mode — Off-grid Mode (battery must be installed)

- **1**    Great than Load



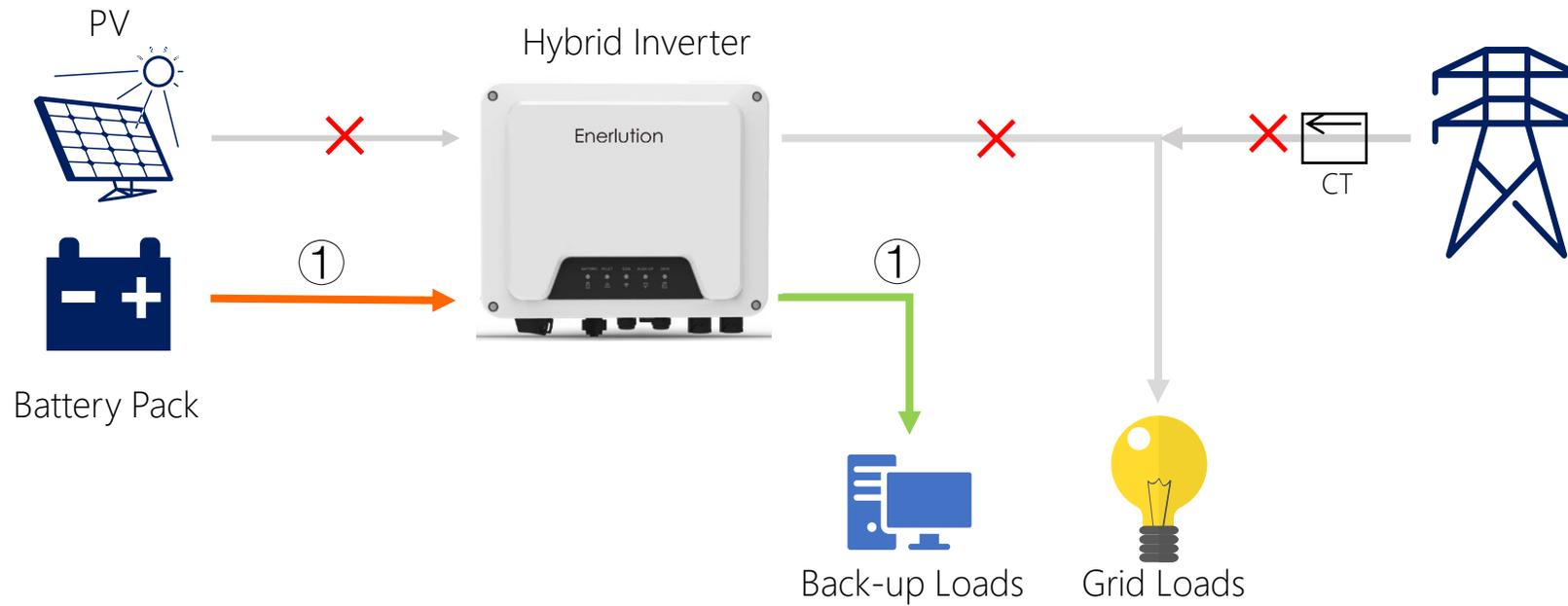
# Work Mode — Off-grid Mode

- 2  < 



# Work Mode — Off-grid Mode

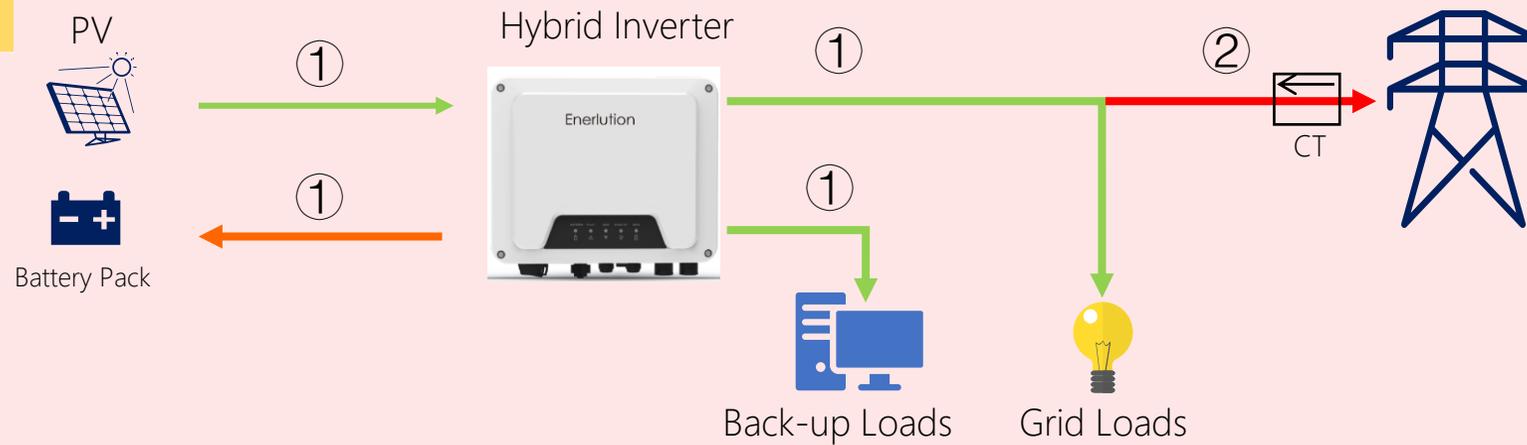
- **3**  = 0



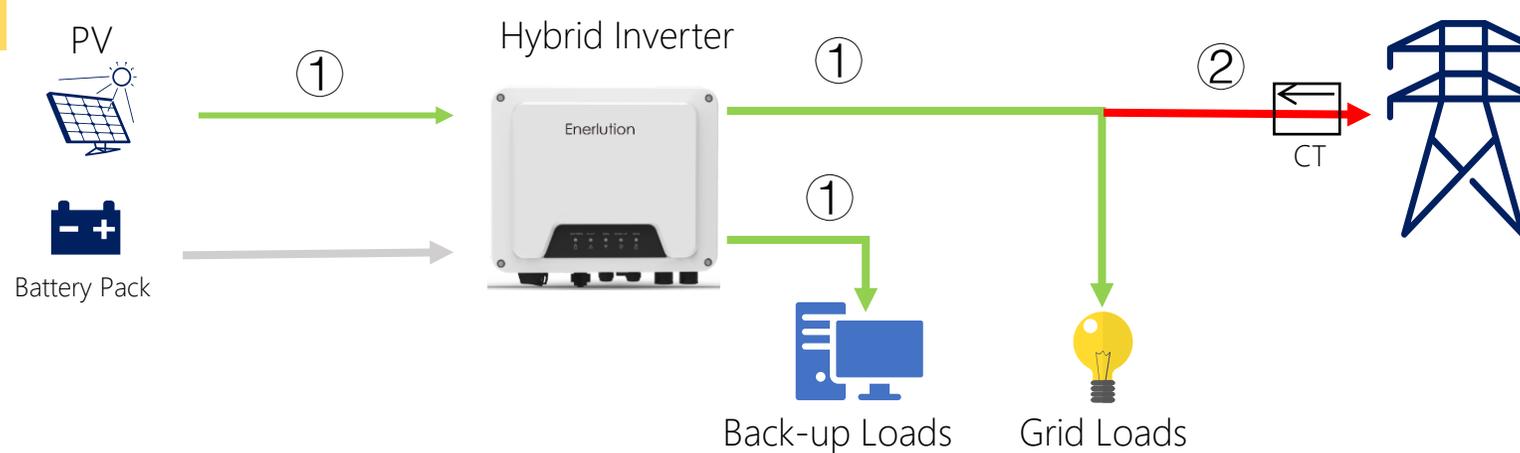
# Work Mode — Feed in Priority Mode

- 1  > 

Charge

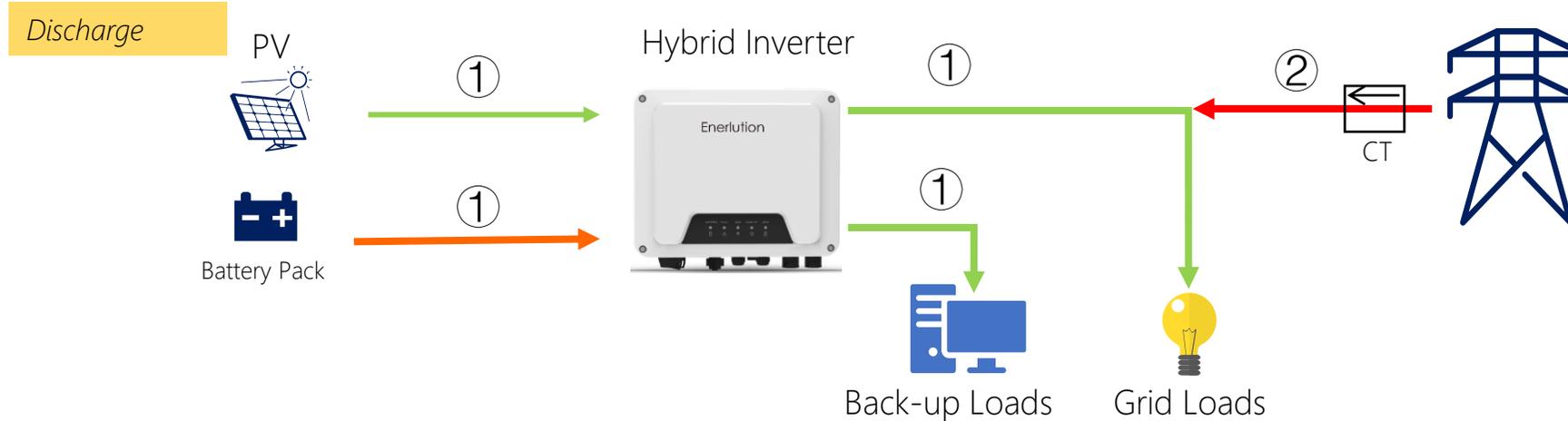
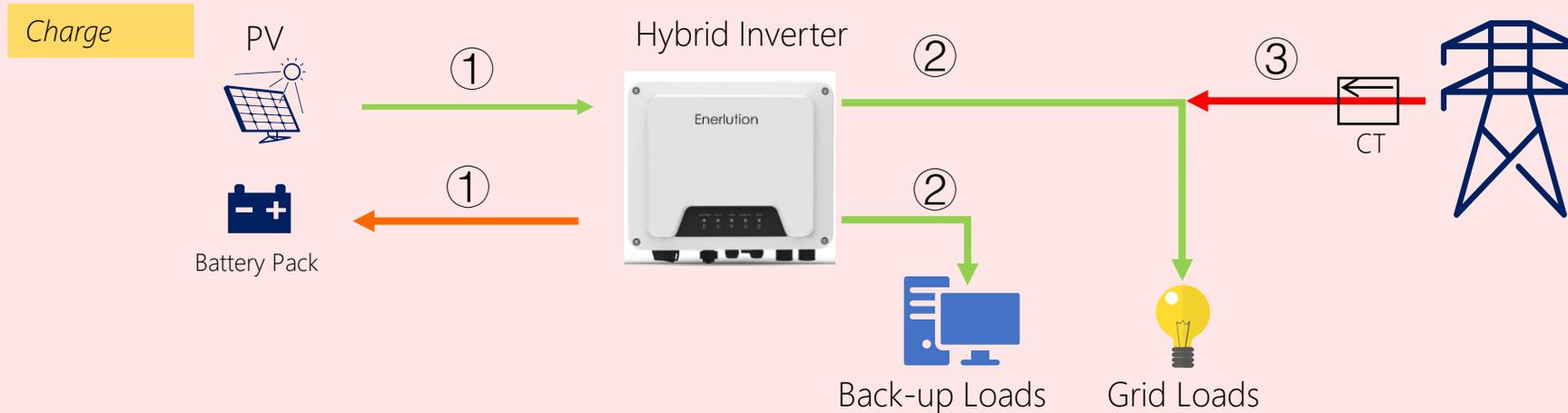


Discharge



# Work Mode — Feed in Priority Mode

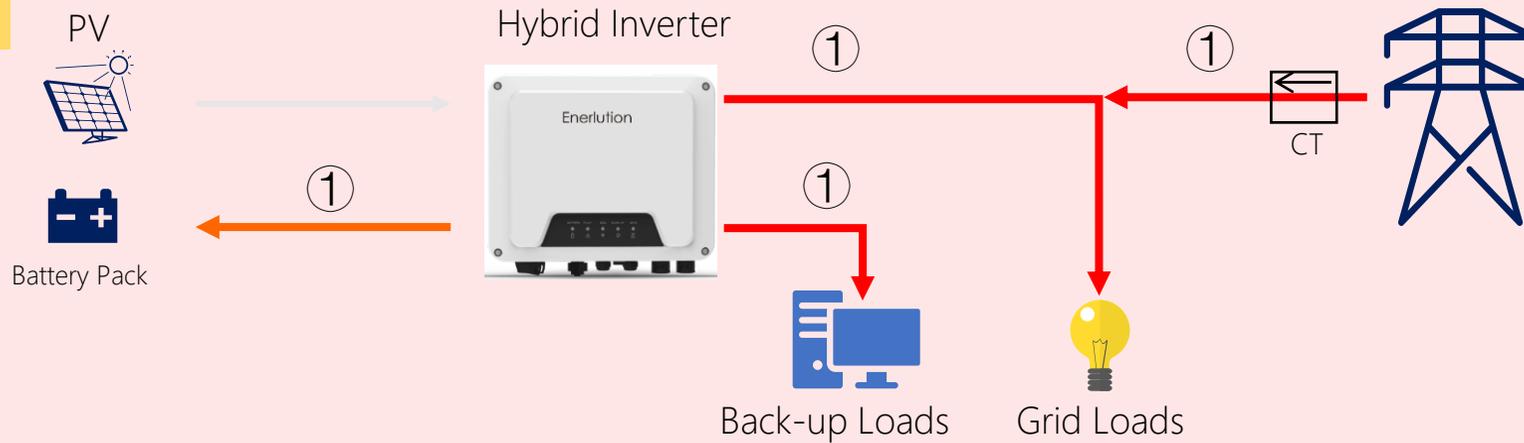
- 2  < 



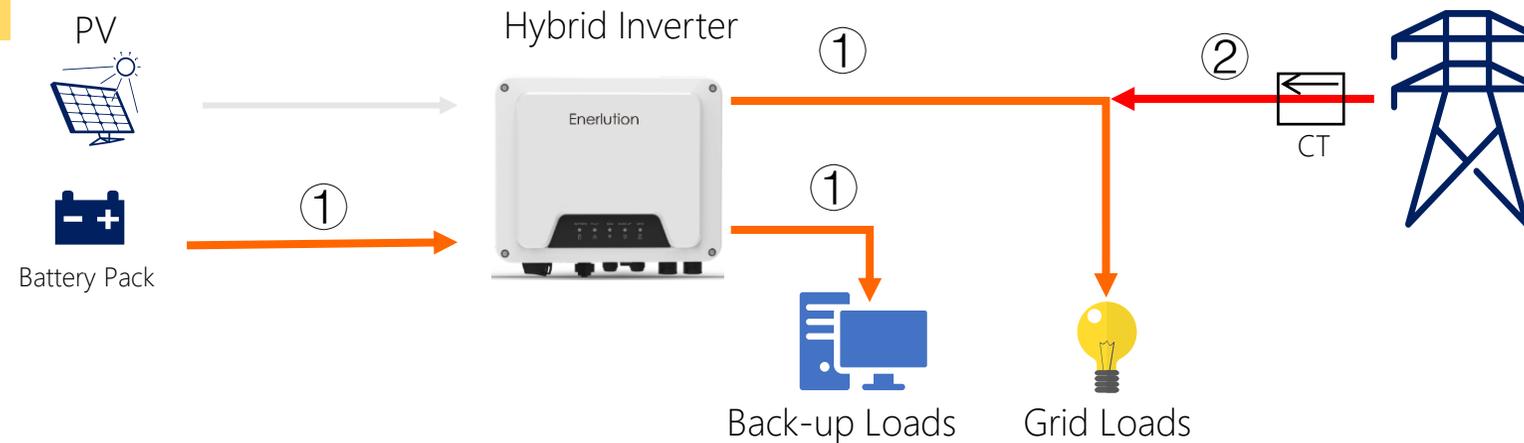
# Work Mode — Feed in Priority Mode

- **3**  = 0

Charge



Discharge



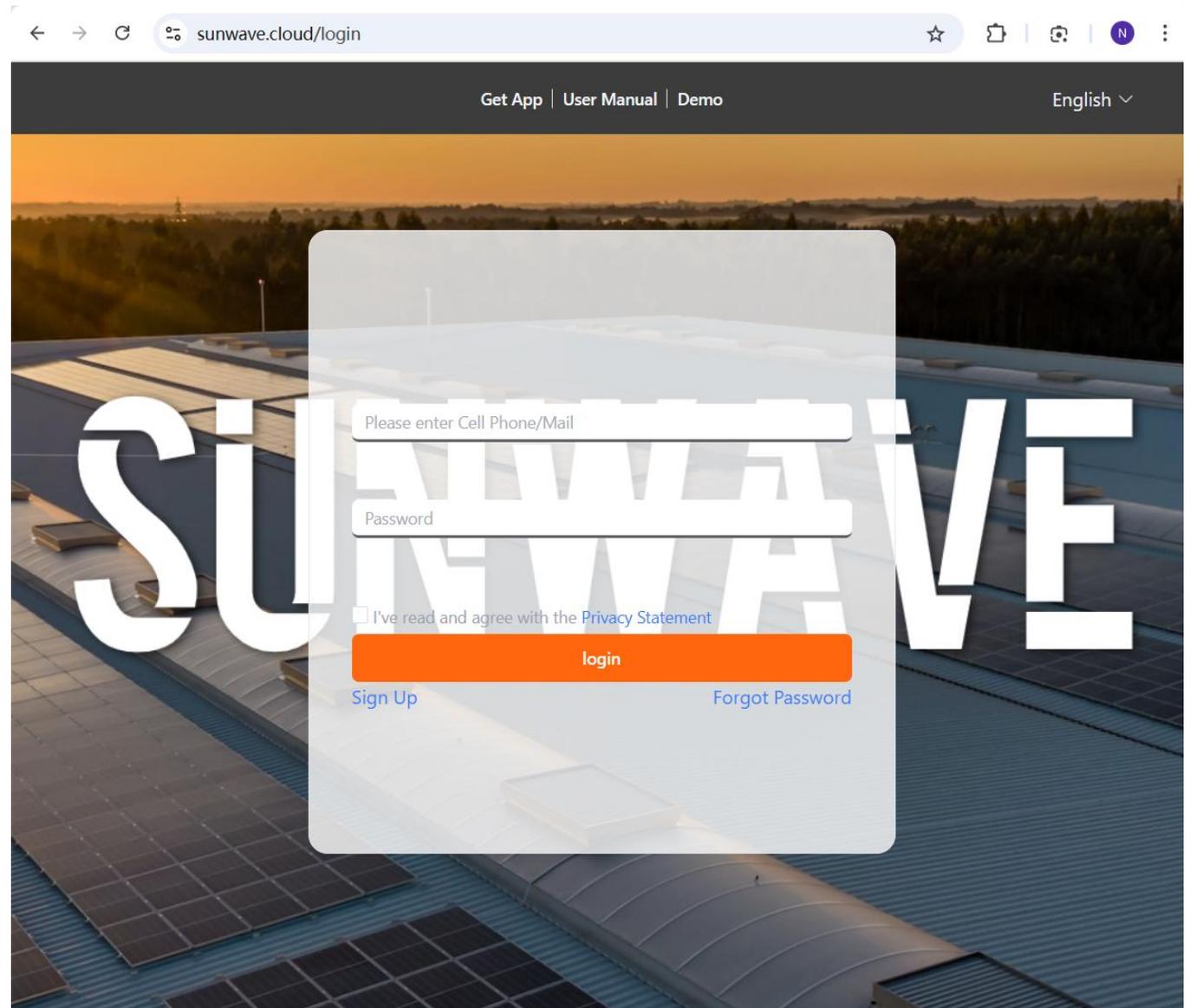
- Family & Models
- High Quality Design & Manufacturing
- Systems & Connections
- Work Modes
- **Installation (referring to the installation training slides)**
- Parameter Setting
- Trouble Shooting

- Family & Models
- High Quality Design & Manufacturing
- Systems & Connections
- Work Modes
- Installation (referring to the installation training slides)
- **Parameter Setting**
- Trouble Shooting

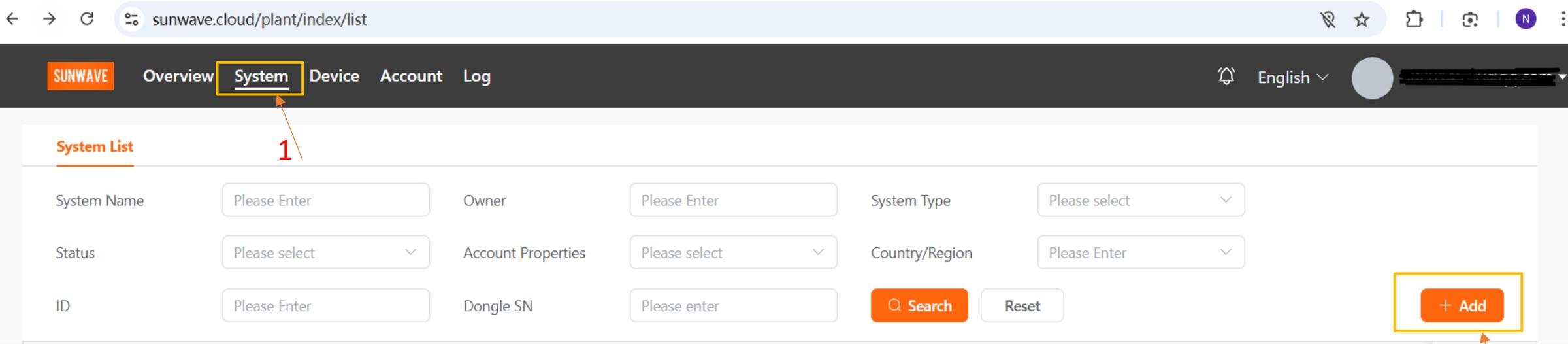
# Parameters Setting (Web Portal)

1, Log in with your account

<https://www.sunwave.cloud/login>



## 2, Create a system



The screenshot shows the Sunwave cloud interface. The browser address bar displays `sunwave.cloud/plant/index/list`. The navigation menu includes **SUNWAVE**, Overview, **System** (highlighted with a yellow box and a red arrow labeled '1'), Device, Account, and Log. The main content area is titled **System List**. It features a form with the following fields:

System Name	<input type="text" value="Please Enter"/>	Owner	<input type="text" value="Please Enter"/>	System Type	<input type="text" value="Please select"/>
Status	<input type="text" value="Please select"/>	Account Properties	<input type="text" value="Please select"/>	Country/Region	<input type="text" value="Please Enter"/>
ID	<input type="text" value="Please Enter"/>	Dongle SN	<input type="text" value="Please enter"/>	<input type="button" value="Search"/>	<input type="button" value="Reset"/>

At the bottom right of the form, there is a yellow button labeled **+ Add**, which is highlighted with a yellow box and a red arrow labeled '2'.

1. Go to **System**
2. Click **+Add**

## 2, Create a system

System List

### Creating a New System

0 of 3 parts completed

- 1 PART 1**  
System Properties
- 2 PART 2  
Revenue & savings
- 3 PART 3  
User access

#### System Properties

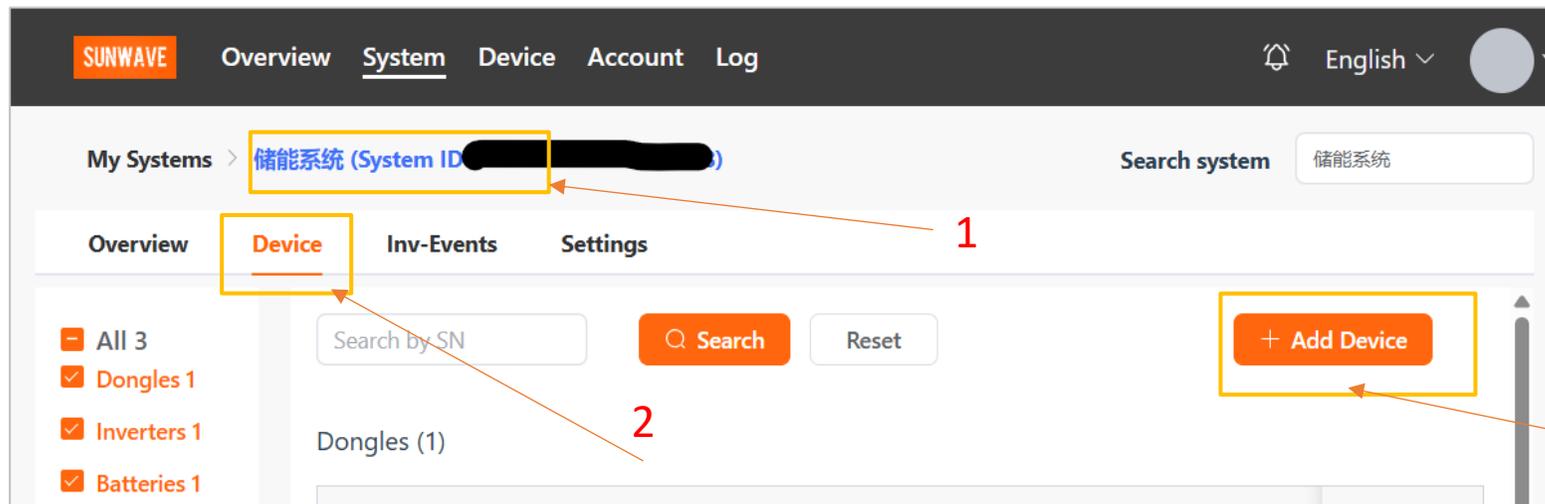
\* System Name

Installation Date

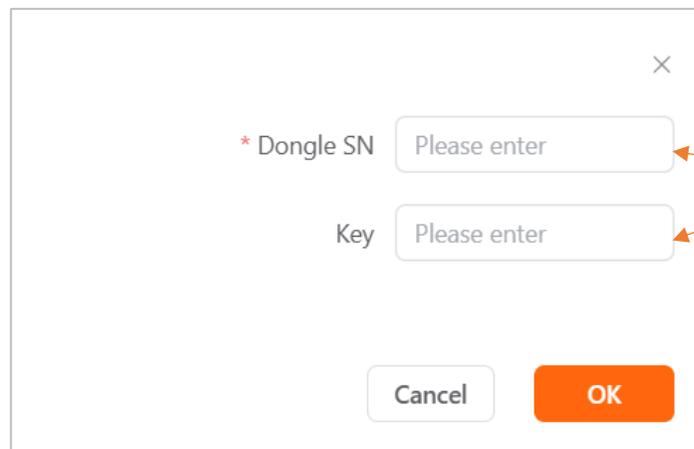
\* Installation Capacity of PV Array  
 kWp

3. Create a new system by filling out the forms

### 3, Add a device



1. Go to your system
2. Go to Device
3. Select 
4. Fill in the Dongle SN and Key, and select OK.



The modal dialog has a close button (X) in the top right corner. It contains two input fields: '\* Dongle SN' and 'Key', both with the placeholder text 'Please enter'. Below the input fields are two buttons: 'Cancel' and 'OK'.



# 4, Find your system and the overview of your system.

[Overview](#)   [Device](#)   [Inv-Events](#)   [Settings](#)



System Name

System Type

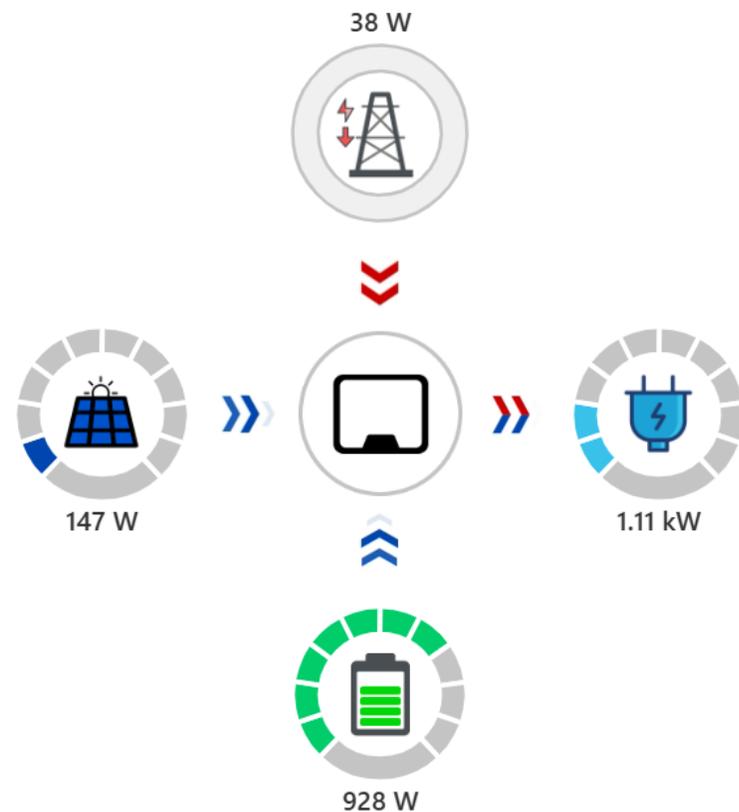
Installed

Capacity

Address



## System Power Flow



## Production History

Energy Today

**5.26 kWh**

Energy This Month

**51.63 kWh**

Energy Since Installed

**2.98 MWh**

## Environmental Contribution

**CO<sub>2</sub>** CO2 emission reduced  
**89.32 kg**

 Equivalent trees planted  
**4.96 trees**

 Equivalent diesel burned  
**330.8 liters**

## Revenue & Savings

 Feed-in revenue today  
**5.26 CNY**

 Feed-in revenue this month  
**51.63 CNY**

 Lifetime revenue  
**2977.21 CNY**

## 5, Parameter Setting

My Systems > 储能系统 (System ID [redacted]) Search system 储能系统

Overview **Device** Inv-Events Settings

- All 3
- Dongles 1
- Inverters 1
- Batteries 1

Status	Dongle SN	Model	Firmware Version	Data Interval [s]	Last Update	Operation
Online	E009901124806899	HED-WF	V1.0.0.21	30	2025/4/20	...

Total 1 5/page < 1 > Go to 1

Inverters (1)

Status	Inverter SN	Device Name	Inverter Model	Firmware Version	Gateway SN	Operation
Online	BA214SX224300004	----	HYTH-12000	V1.0.0.58	E009901124806899	...

Total 1 5/page < 1 > Go to 1

Batteries (1)

Status	Battery SN	Firmware Version	Voltage [V]	Current [A]	SOC	Inverter SN	Operation
Discharge	BA214SX224300004	V0.1.0.2	294.6	3.2	65%	BA214SX224300004	...

Total 1 5/page < 1 > Go to 1

1. Click “device”
2. find the inverter
3. Move your mouse to the three dots under “Operation” .

Inverters (1)

Status	Inverter SN	Device Name	Inverter Model	Firmware Version	Gateway SN	Operation
Online	BA214SX224300004	-----	HYTH-12000	V1.0.0.58	E009901124806899	...

Total 1

5/page

< 1 >

- Detail
- Setting
- Debug
- Firmware Upgrade
- Data
- Device Name

Batteries (1)

Status	Battery SN	Firmware Version	Voltage [V]	Current [A]	SOC	Inverter SN
Discharge	BA214SX224300004	V0.1.0.2	294.1	3.8	63%	BA214SX224300004

Total 1

5/page

< 1 >

Go to 1

4. Press "Setting"

My Systems > 储能系统 (System ID [redacted]) Search system 储能系统

Overview Device Inv-Events Settings

Parameter Setting(BA214SX224300004) Refresh

Please enter

BA214SX224300004

**Grid Standard**

Grid Standard

Grid Standard

NL EN 50549-1:2019

OK

**Interface Protection**

Active Power Control

Reactive Power Control

Internal Setting

Energy Management

Interface Protection: it is recommended to keep the default value in most of the cases.

To change the grid standard, you need to create an error, by either removing the battery cable or the grid cable. The grid standard is changeable only when there is an inverter error.

5. You are now in the inverter parameter setting page.

- Setting Active Power Mode

Item	Option
Active Power Control Mode	<i>Meter/CT</i>
Meter Limiting Power	0: No power will feed into grid; -2000: The maximum power that flow to grid will be limited to 2000
Meter Type	Meter SDM630: <i>SDM630</i> ; Meter SDM230: <i>SDM230</i> ; CT: <i>Internal CT</i>

Select the corresponding device that you are using

Overview   Dingles   **Inverters**   Batteries   Events   Settings

Parameter Setting(BA2090A122900015)

Grid Standard

Grid Protection

**Active Power Control**

Reactive Power Control

Remote On/Off

Energy Management

**Fixed Active Power**

Active Power Control Mode Meter/CT ^

Meter Limiting Power

Meter Type

System Limit Power

Meter Limit Mode

No Used

Fixed Active Power

DRED

**Meter/CT**

Plant Control

Parameter Setting(BA2090A122900015)

Grid Standard

Grid Protection

**Active Power Control**

Reactive Power Control

Remote On/Off

Energy Management

**Fixed Active Power**

Active Power Control Mode Meter/CT v

Meter Limiting Power -2000

Meter Type SDM630 ^

System Limit Power

Meter Limit Mode

Startup Loading Slope(%Pn/min)

SDM230

**SDM630**

Internal CT

- Setting Battery/Work Mode

Item	Option
Battery Model	<i>NO Battery/Battery Simulator/HUAYU, ETC. PLEASE SELECT "HUAYU".</i>
Work Mode	<i>General mode</i> (default)/Back up mode/Off-grid mode/Feed in priority mode
Backup Limited SOC	<i>10%</i> (default)
Backup Enable	<i>Enable EPS Output (default)</i> ---need to enable EPS output if there is load on the backup port

Battery Model

Battery Model

Charge/Discharge Power Reference

Work Mode

Backup Enable

Backup Limited SOC

Hypontech-HV  
 BYD-HV  
**Hypontech-HV**  
 LSNE-HiBAY  
 DMEGC-H01  
 Puredrive-HV  
 SUNWODA-HV  
**HUAYU-HV**  
 SHOTO-HV

Parameter Setting(BA2090A122900015)

Grid Standard

Grid Protection

Active Power Control

Reactive Power Control

Remote On/Off

Energy Management

Battery Model

Work Mode

Work Mode

General mode

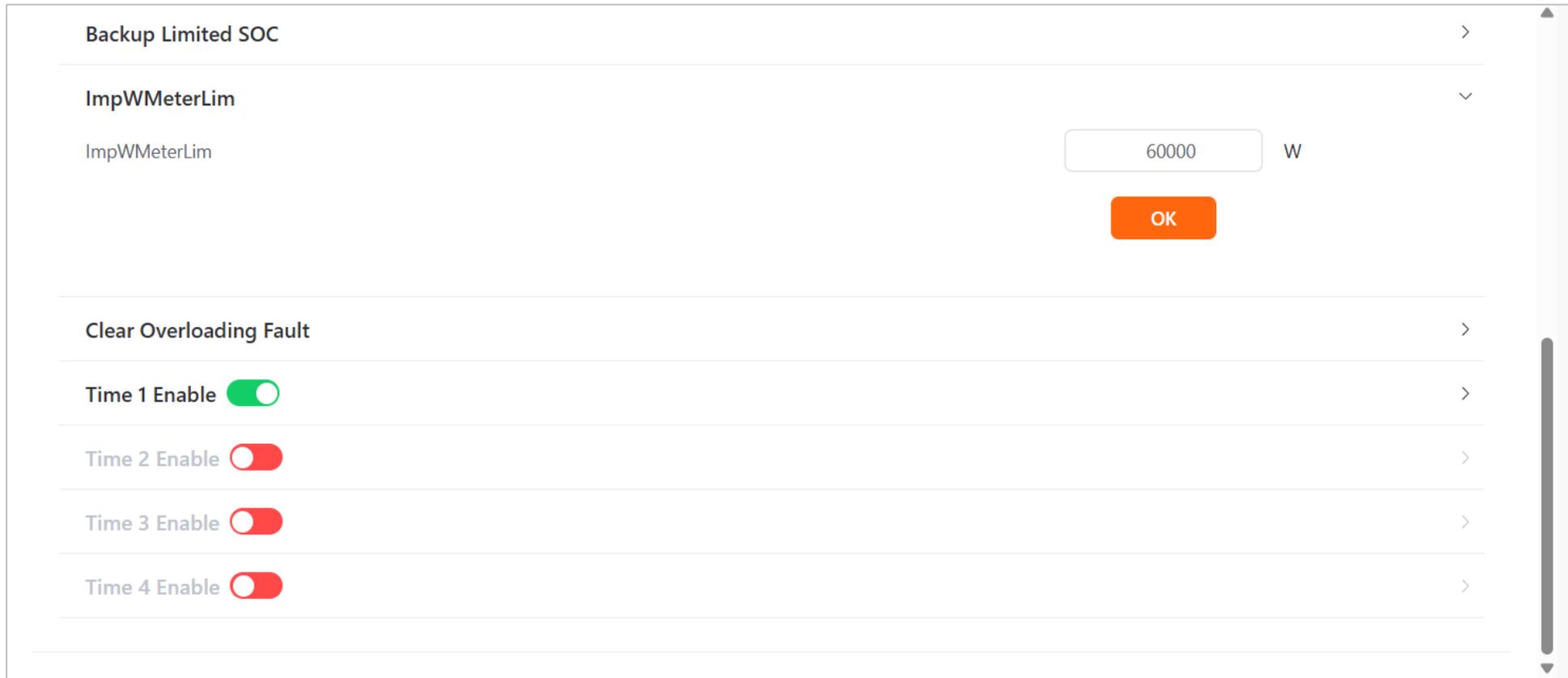
**General mode**  
 Back up mode  
 Off-Grid mode  
 Feed in priority mode  
 User mode

Backup Enable

Backup Limited SOC

Select HUAYU-HV  
(HUAYU is the Chinese words for Enerlution)

- Set up ImpWMeterLim



The screenshot shows a configuration menu with several options. The 'ImpWMeterLim' option is expanded, showing a text input field containing '60000' followed by a 'W' unit label, and an orange 'OK' button below it. Other options include 'Backup Limited SOC', 'Clear Overloading Fault', and four time-based enable toggles: 'Time 1 Enable' (checked), 'Time 2 Enable', 'Time 3 Enable', and 'Time 4 Enable' (all unchecked).

- Set up ImpWMeterLim – the maximum power imported from the grid. If the power is greater than the set value, the battery will discharge to supply electricity to the load until the imported power is less than the set value.

- Set up time/charge mode/date. Four time periods are available.

**Time 1 Enable**

Start Time

End Time

Charge/Discharge Power  0.1%Pn (0.0-100)

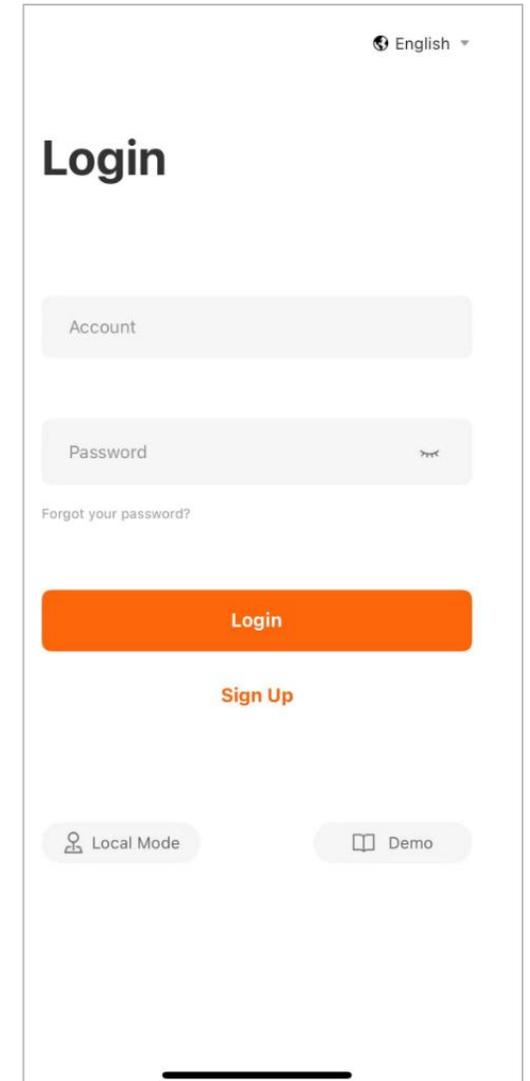
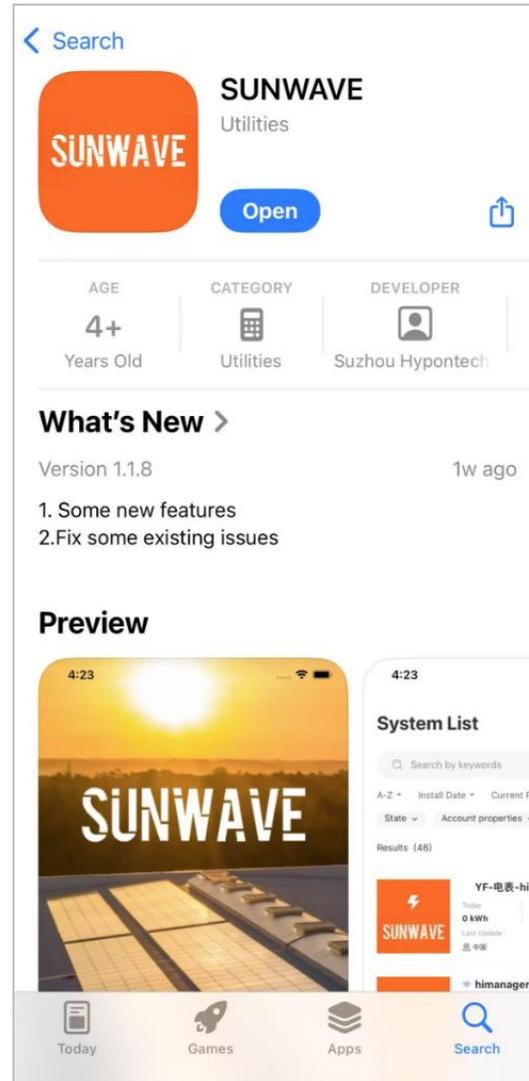
Mode

Repeat

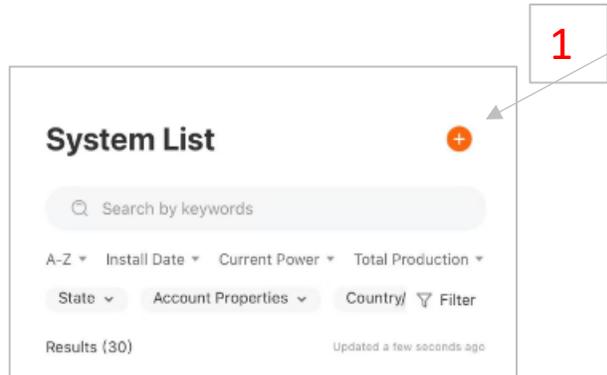
- Monday ×
- Tuesday ×
- Wednesday ×
- Thursday ×
- Friday ×
- Saturday ×
- Sunday ×

# Parameters Setting (APP Portal)

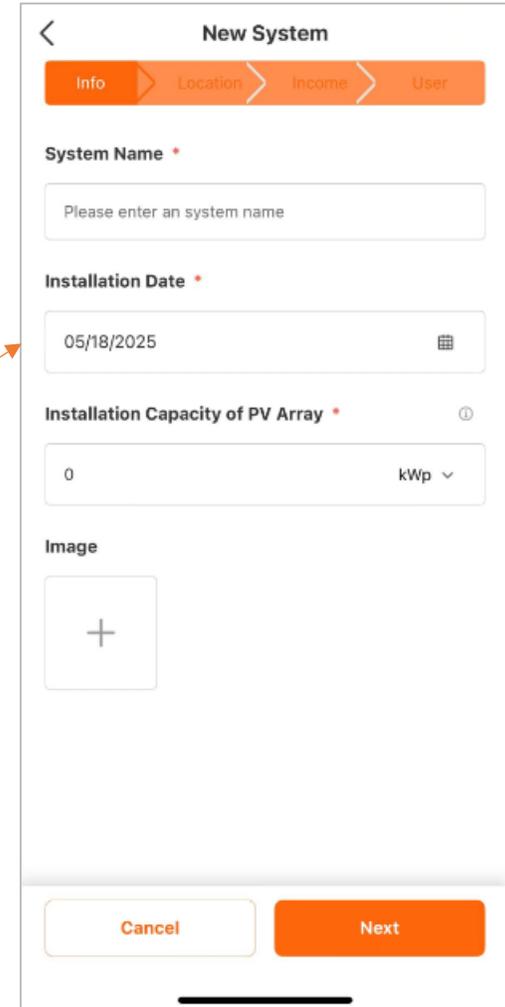
1, Download **SUNWAVE** APP and log in your account.



## 2, Create a system



2



The screenshot shows the 'New System' form. At the top, there is a back arrow and the title 'New System'. Below the title, there are four tabs: 'Info', 'Location', 'Income', and 'User'. The 'Info' tab is selected. The form contains the following fields:

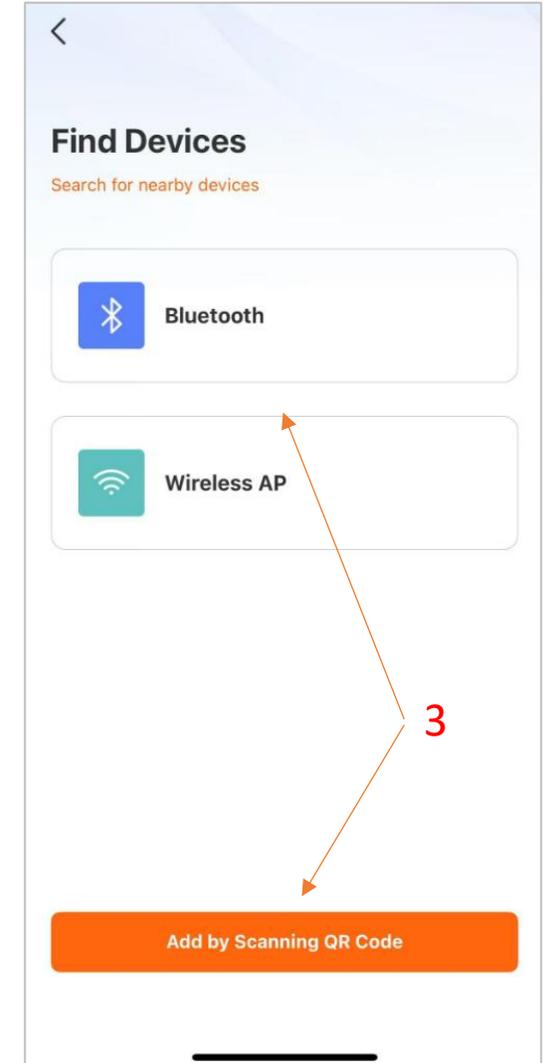
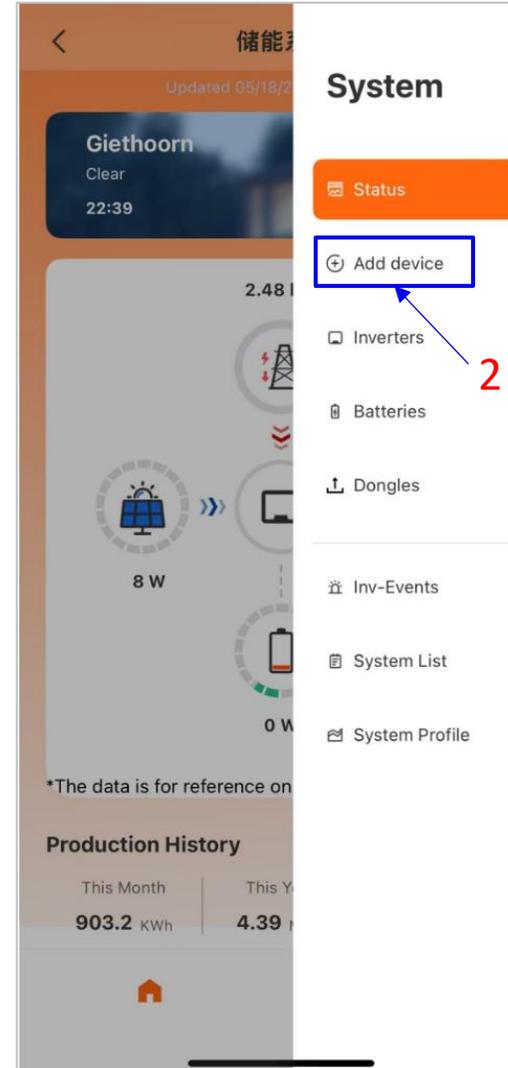
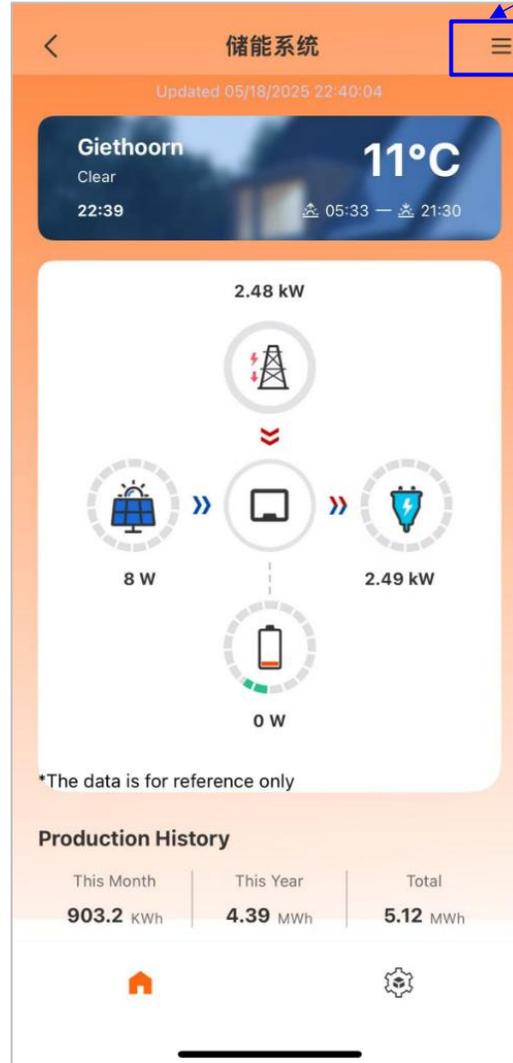
- System Name \***: A text input field with the placeholder 'Please enter a system name'.
- Installation Date \***: A date picker field showing '05/18/2025'.
- Installation Capacity of PV Array \***: A numeric input field with '0' and a unit dropdown menu set to 'kWp'.
- Image**: A placeholder box with a plus sign (+).

At the bottom, there are two buttons: 'Cancel' and 'Next'.

1. Go to system list and select 
2. Create a new system by filling out the forms.

### 3, Add a device

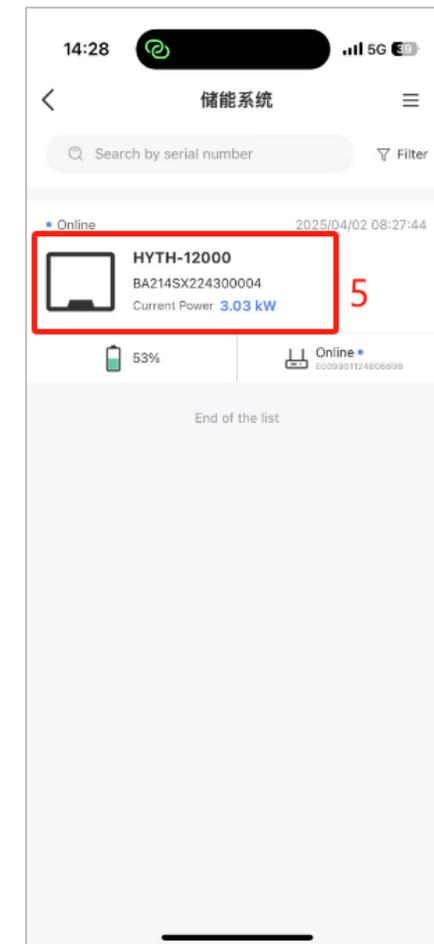
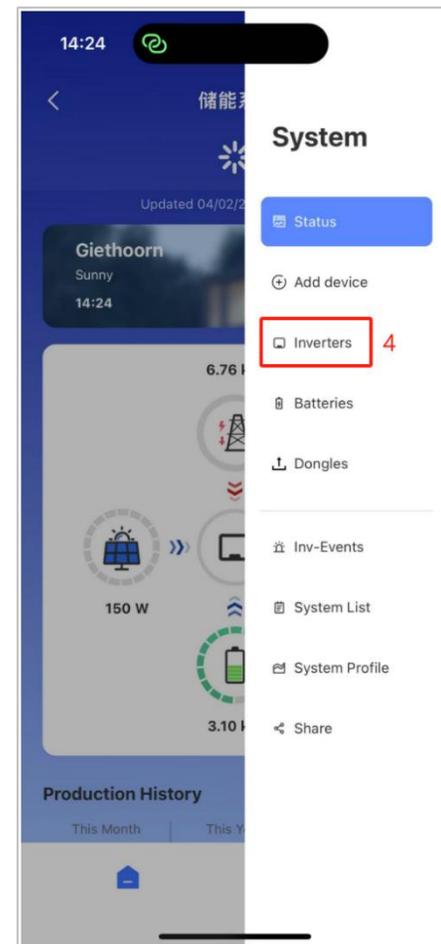
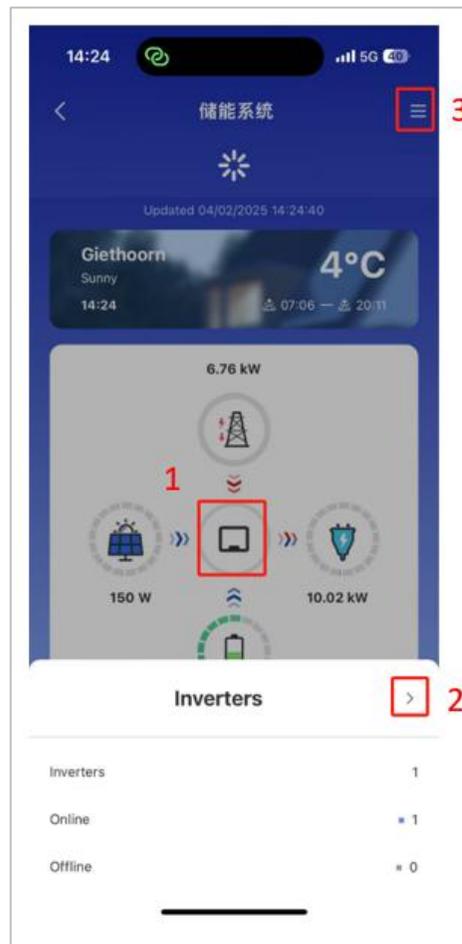
1. Go to your system and click 
2. Click Add device
3. Add the device by Bluetooth, Wireless AP, or just scanning QR code on your device.



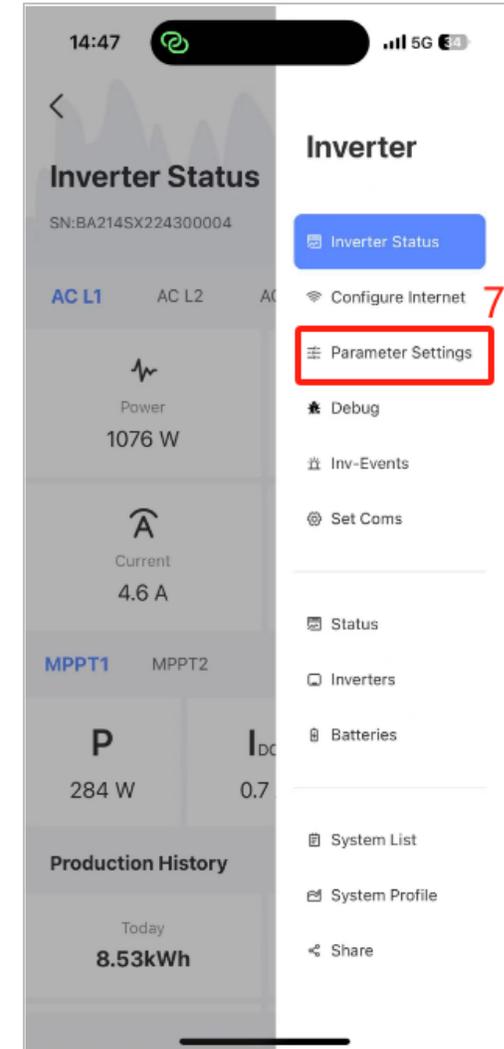
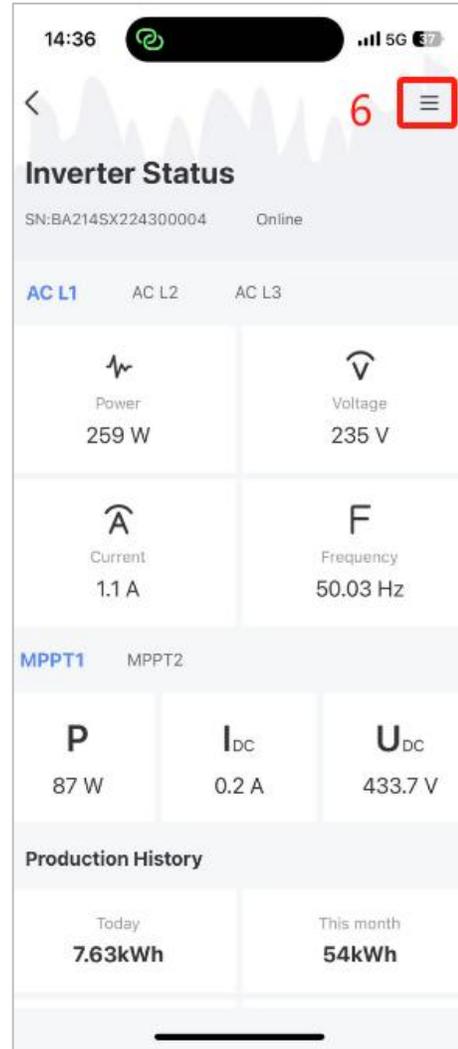
Find your system and click the inverter icon (1) which is in the middle of the energy flow chart, then click the right arrow (2) ;

Or click the three short dash line (3) on the right top of the screen and select “inverters” (4);

Now you are at “inverter Page”, click the inverter (5) you will see inverter status.

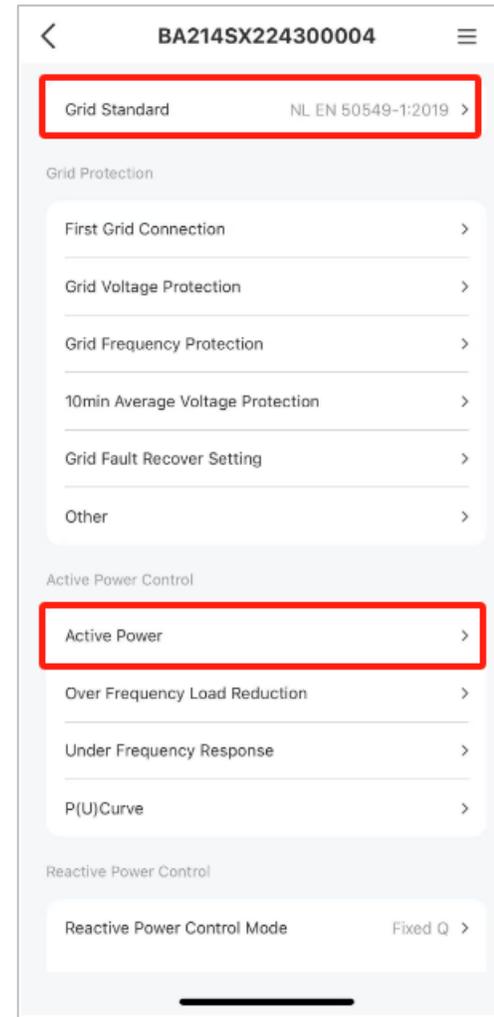


At inverter status, click (6), then "Parameter Settings" (7),



- ① Change Grid standard if necessary. (Remember to create an error code to change the grid standard).
- ② Set up Active Power

Item	Option
Active Power Control Mode	<i>Meter/CT</i>
Meter Limiting Power	<i>0</i> : No power will feed into grid; <i>-2000</i> : The maximum power that flow to grid will be limited to 2000
Meter Type	Meter SDM630: <i>SDM630</i> ; Meter SDM230: <i>SDM230</i> ; CT: <i>Internal CT</i>



BA214SX224300004

Grid Standard NL EN 50549-1:2019 >

Grid Protection

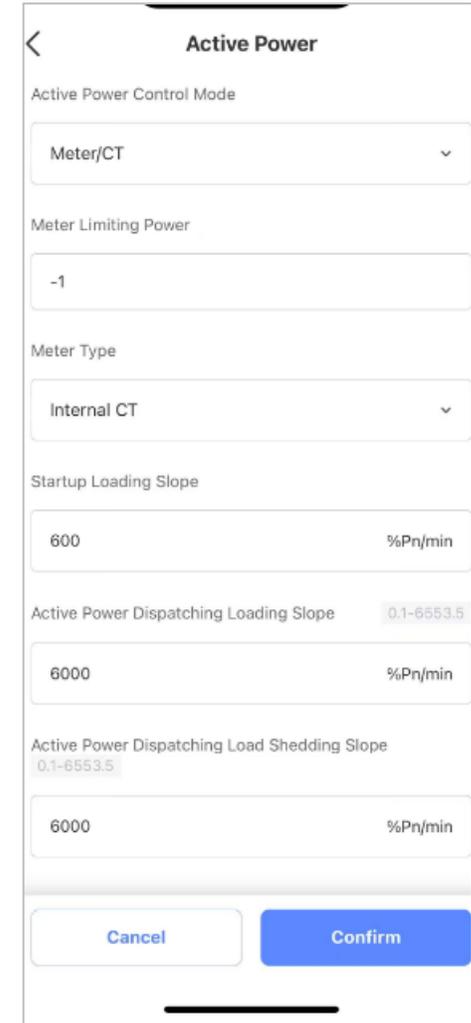
- First Grid Connection >
- Grid Voltage Protection >
- Grid Frequency Protection >
- 10min Average Voltage Protection >
- Grid Fault Recover Setting >
- Other >

Active Power Control

- Active Power >
- Over Frequency Load Reduction >
- Under Frequency Response >
- P(U)Curve >

Reactive Power Control

Reactive Power Control Mode Fixed Q >



Active Power

Active Power Control Mode

Meter/CT

Meter Limiting Power

-1

Meter Type

Internal CT

Startup Loading Slope

600 %Pn/min

Active Power Dispatching Loading Slope 0.1-6553.5

6000 %Pn/min

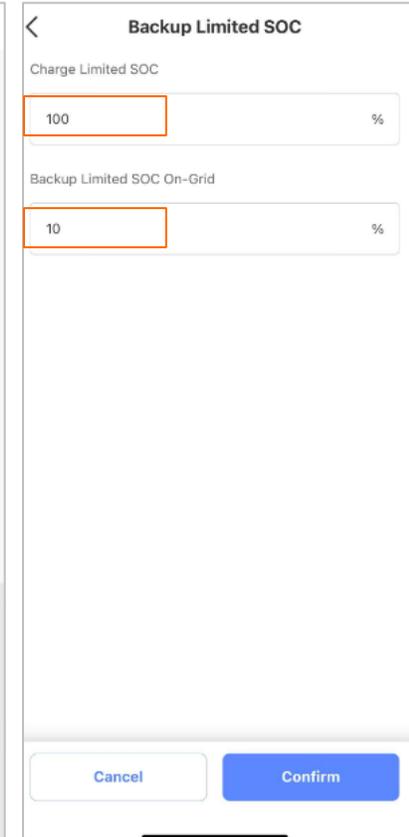
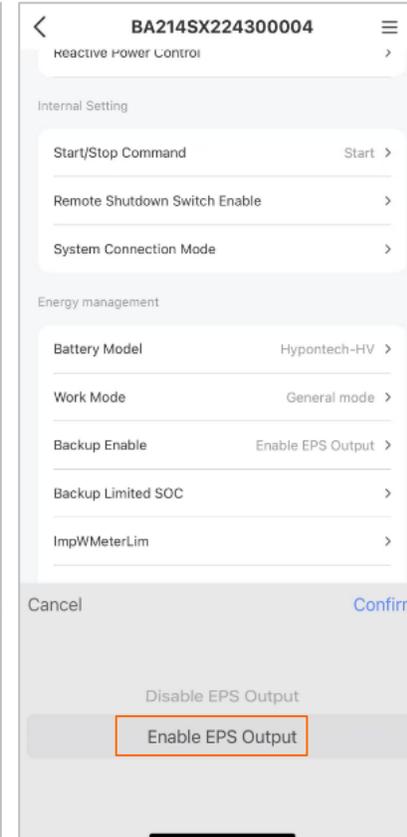
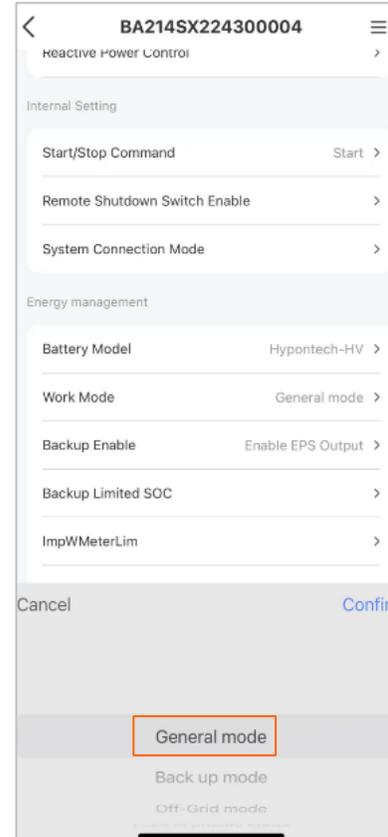
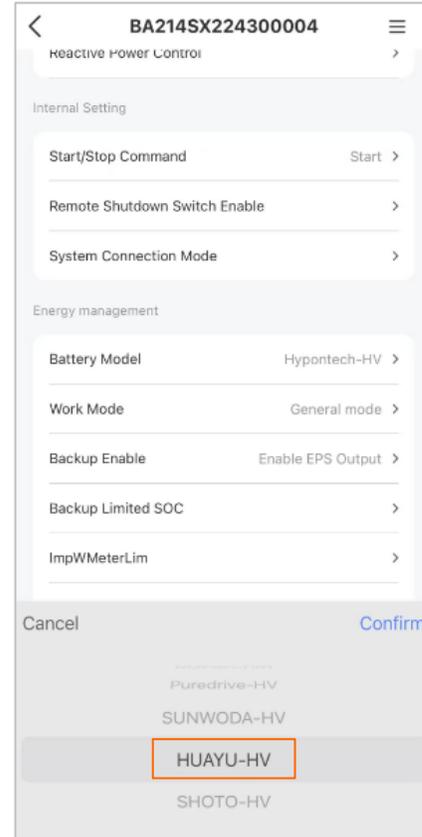
Active Power Dispatching Load Shedding Slope 0.1-6553.5

6000 %Pn/min

Cancel Confirm

### ③ Set up Energy Management (1 of 2)

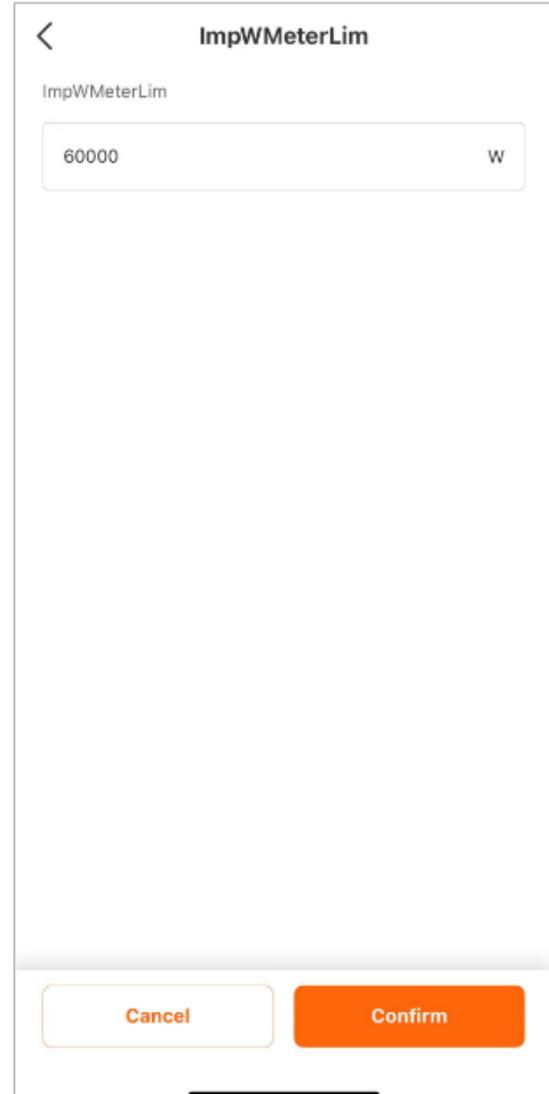
Item	Option
Battery Model	<ul style="list-style-type: none"> <li>NO Battery</li> <li>Battery Simulator</li> <li>HUAYU (for Enerlution Batteries)</li> </ul>
Work Mode	<ul style="list-style-type: none"> <li>General mode (default)</li> <li>Back up mode</li> <li>Off-grid mode</li> <li>Feed in priority mode</li> </ul>
Backup Limited SOC	10% (default)
Backup Enable	Enable EPS Output (default)- --need to enable EPS output if there is load on the backup port



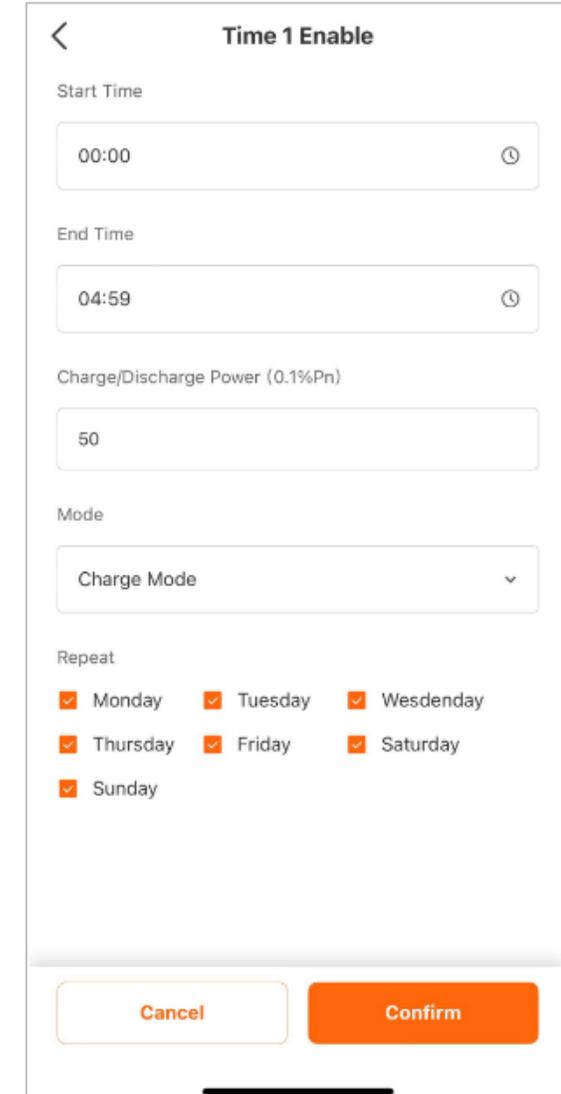
Select HUAYU-HV  
(HUAYU is the Chinese words for Enerlution)

### ③ Set up Energy Management (2 of 2)

- Set up ImpWMeterLim – the maximum power imported from the grid. If the power is greater than the set value, the battery will discharge to supply electricity to the load.
- Set up time/charge mode/date. Four time periods are available.



The screenshot shows the 'ImpWMeterLim' configuration screen. At the top, there is a back arrow and the title 'ImpWMeterLim'. Below the title, the label 'ImpWMeterLim' is followed by a text input field containing the value '60000' and a unit selector 'W'. At the bottom of the screen, there are two buttons: 'Cancel' and 'Confirm'.

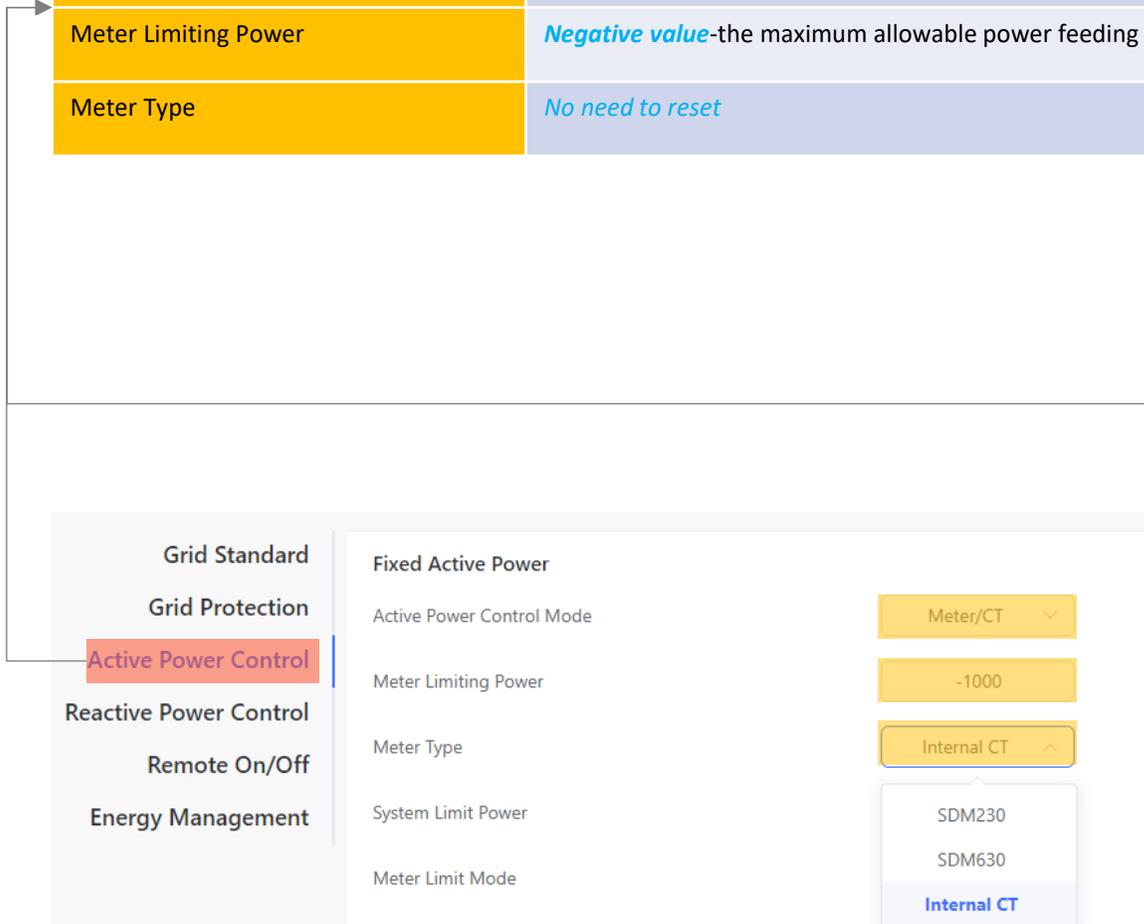


The screenshot shows the 'Time 1 Enable' configuration screen. At the top, there is a back arrow and the title 'Time 1 Enable'. Below the title, there are several configuration options: 'Start Time' (00:00), 'End Time' (04:59), 'Charge/Discharge Power (0.1%Pn)' (50), and 'Mode' (Charge Mode). At the bottom, there is a 'Repeat' section with checkboxes for all days of the week (Monday through Sunday), all of which are checked. At the bottom of the screen, there are two buttons: 'Cancel' and 'Confirm'.

# The Difference Between **HYSH** & **HYTH** On The Setting

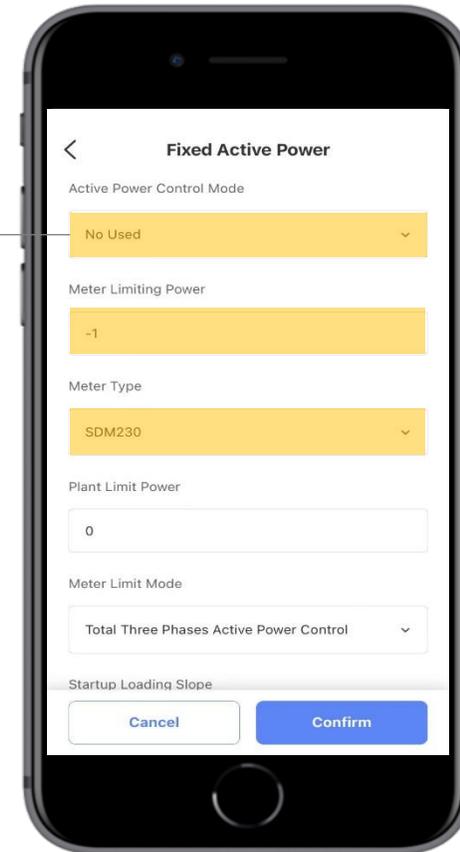
- Setting Battery/Work Mode

Item	HHS	HHT
Active Power Control Mode	<i>No need to reset</i>	<i>The Meter/CT default (with battery)</i>
Meter Limiting Power	<i>Negative value</i> -the maximum allowable power feeding to grid	<i>Negative value</i> -the maximum allowable power feeding to grid
Meter Type	<i>No need to reset</i>	<i>Internal CT or SDM230 or SDM630</i> Depending on which device you are using



The screenshot shows a web interface for configuring 'Fixed Active Power'. On the left, a navigation menu includes 'Grid Standard', 'Grid Protection', 'Active Power Control' (highlighted in red), 'Reactive Power Control', 'Remote On/Off', and 'Energy Management'. The main content area shows the following settings:

- Active Power Control Mode: Meter/CT
- Meter Limiting Power: -1000
- Meter Type: Internal CT (with a dropdown menu showing options: SDM230, SDM630, and Internal CT)
- System Limit Power: (empty field)
- Meter Limit Mode: (empty field)



The screenshot shows the mobile app interface for 'Fixed Active Power' settings. The settings are as follows:

- Active Power Control Mode: No Used
- Meter Limiting Power: -1
- Meter Type: SDM230
- Plant Limit Power: 0
- Meter Limit Mode: Total Three Phases Active Power Control
- Startup Loading Slope: (empty field)

Buttons for 'Cancel' and 'Confirm' are visible at the bottom.

# Energy Management

Item	HYSH/HYTH
Battery Model	NO Battery/Dyness (Default)/Pylon/Soluna/Aoboet
Work Mode	<i>General mode</i> /Back up mode/Off-grid mode/Feed in priority mode
Backup Enable	<i>No need to reset</i>
Backup Limited SOC (Backup Limited SOC)	<i>The default value is 10%</i> ( the battery will stop discharging when its SOC= this value)
Backup Limited SOC (Charged Limited SOC)	<i>The default value is 100%</i> (Charge the battery until its SOC =this value)
ImpWMeterLim	The maximum import power form grid
Time Enable	Set <i>Charge/Discharge</i> period and power, no need to set unless you really need to make the system follow your own work mode.



Grid Standard

Grid Protection

Active Power Control

Reactive Power Control

Remote On/Off

**Energy Management**

Battery Model

Work Mode

Backup Enable

Backup Limited SOC

ImpWMeterLim

Clear Overloading Fault

Time 1 Enable

Time 2 Enable

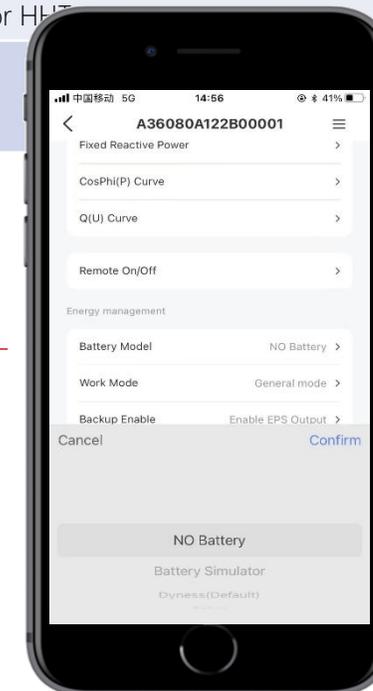
Time 3 Enable

Time 4 Enable

- Family & Models
- High Quality Design & Manufacturing
- Systems & Connections
- Work Modes
- Installation (referring to the installation training slides)
- Parameter Setting
- **Trouble Shooting**

# Error Codes & Solution

Error Code	Description	Solution
Fault 21	BMS COM FAULT	BMS of battery failed <ul style="list-style-type: none"><li>• Make sure the protocol of battery apply with inverter</li><li>• Make sure the connection between battery and inverter is stable</li><li>• Make sure the battery brand be selected correctly on the battery mode</li></ul>
Fault 22	CT Null FAULT	CT not be detected by inverter <ul style="list-style-type: none"><li>• Make sure the connection between CT and inverter is firm and stable</li><li>• Make sure the CT mode be selected correctly (for HHT, there are internal CT,SDM630)</li></ul>
Fault 23	CT Reverse FAULT	CT direction is reverse <ul style="list-style-type: none"><li>• Reverse the CT direction (the direction of arrow should be from grid to house)</li></ul>
Fault 24	Battery null FAULT	Battery voltage over the range or no battery be connected <ul style="list-style-type: none"><li>• Make sure the battery has been connected to inverter well</li><li>• Make sure the voltage of battery is in the range 80-480V for HHS, and 155-810V for HHT</li></ul>
Fault 25	EPS Over Load fault	The load is larger than the rated output power of inverter (last 60 seconds)



# Thank you!



The perfect combo in Europe for smart energy storage

